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## GRAIN PRODUCTION IN SOVIET UNION DISCUSSED

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 7, Jul 79 pp 3-12

[Article: "The Nation's Grain"]

[Text] Nowadays the hum of machinery on the grain fields does not die down from morning until late at night. The main flow of the 1979 harvest has arrived at the grain threshing floors and elevators.

For grain growers, who are masters of their trade and have raised the crops under difficult weather conditions, all jobs are important. They exerted all of their efforts when they cut the furrows, placed the seeds in the ground or topdressed the planted areas. But the harvest is rightfully called the culmination of all their concerns. The entire country is attentively following its course.

"On our state's coat of arms," Comrade L. I. Brezhnev emphasized in a speech at the July (1978) Plenum of the CPSU Central Committee, "are golden spikes of wheat. And this is no accident. Our grain is the result of the combined labor of peasants, workers and the intelligentsia. Further advancement of agriculture is an indispensable part of the all-around economic progress of the entire country."

Since the first days of Soviet power when Vladimir Il'ich Lenin pointed out that the struggle for grain is the struggle for socialism up to the present time the communist party has attached exceptional importance to increasing the production and procurements of grain and fully supplying the country with bread.

Our country's actual per capita consumption of grain products has decreased from 200 kilograms in 1913 to 156 in 1965 and to 140 kilograms in 1978. This is the result of a marked change in the structure of the Soviet diet, in which an ever increasing proportion is being taken up by such valuable products as meat, milk, fish, vegetables and fruits. But even with the reduction in expenditures of grain for nutrition, the demand for it is not decreasing, but is always increasing. The country needs not only more grain, but also a particular assortment and high quality. In postwar years the

population's need has been satisfied for five to eight kinds of bakery items. At the present time many cities of the country produce up to 100 kinds of them. The change in the structure of the people's diet in the direction of increased proportions of meat, milk, butter and eggs, in keeping with modern scientifically substantiated norms, requires accelerated development of animal husbandry branches.

In keeping with the decisions of the July (1978) Plenum of the CPSU Central Committee, the average annual gross grain yield is to be increased to 238-243 million tons in 1981-1985, and by 1990 it is to be increased to an average of 1 ton per person in the country. The demand for grain for the population's nutrition is limited to approximately 40 million tons. Grain and concentrated feeds are necessary components in the rations for feeding cattle, hogs and poultry. At the present time the animal husbandry branch annually consumes 114-118 million tons of grain. The earmarked growth in grain production will make it possible in the next few years to increase feed production and, consequently, the production of animal husbandry products so as to maximally satisfy the population's needs for the main food products.

"We have enough grain to satisfy the population's needs for bakery items," said Comrade L. I. Brezhnev. "We are now speaking about another, no less important aspect of the grain problem -- increasing the production of the more valuable forage grain crops and improving their quality."\* A considerable proportion of the gross grain yield is also used for industrial processing, the creation of reserves and satisfying foreign trade needs.

The grain problem now requires a comprehensive solution which is based primarily on practical utilization of the achievements of science, technology and advanced practice in public production. In all stages of socialist and communist construction our party has attached primary significance to these factors. The work of industry and the other branches of the national economy and also the reproduction of the labor force -- a decisive element of productive forces -- depend on the level of agriculture. The food supply and, above all, the supply of grain, Vladimir Il'ich Lenin emphasized, essentially influence the development of the country's entire economy and in international relations it ensures the state's economic independence. In 1921 V. I. Lenin wrote: "Only by being the actual owner of a sufficient food supply can a working state stand firmly on its own two feet in economic relations ...."\*\*

From year to year the countries of the socialist community are achieving significant successes. While in 1951-1957 the gross grain yield here amounted to an average of 131.1 million tons, in 1971-1975 it was 255.7 million tons and in 1976-1977 it was 283.6 million tons, that is, it more than doubled!

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\* L. I. Brezhnev, "Leninskim kursom" [On a Leninist Course], Vol 6, Moscow, Politizdat, 1978, p 328.

\*\* V. I. Lenin, "Polnoye sobraniye sochineniy" [Collected Works], Vol 44, p 9.

The Soviet Union produces 68 percent of the grain and more than two-thirds of the gross agricultural output of the socialist countries. The increase in grain production is taking place both through increased productivity and through a certain amount of expansion of the planted areas, which is corroborated by the data in the following table (yearly averages):

			1976- 1980	1976- 1980	1976- 1980
	1966- 1970	1971- 1975	1976- 1980 (plan)	1976- 1980 (actual)	in % of 1971- 1975
Area planted in grain crops (millions of hectares)	122.3	123.5	130.0	128.9	104.4
Productivity (quintals per hectare)	13.7	14.7	16.9	17.0	115.6
Gross yield (millions of tons)	167.6	181.6	220.0	218.9	120.5
State procurements (millions of tons)	66.0	67.6	90.0	85.3	126.2

As one can see from the table, the average annual grain production in the country reached 176.6 million tons in 1966-1970, an increase of 37.3 million tons over the preceding 5 years. Despite the great difficulties in the development of grain production, much of which is located in arid regions, the gross yields of grain are increasing from one five-year period to another. Under the Ninth Five-Year Plan, for example, only 1973 could be considered a favorable year with respect to weather conditions. And in 1972 and 1975 the country was faced with unprecedented droughts. Nonetheless, because of the stronger material and technical base and the increased mastery of the farmers, it was possible to increase the average annual grain yield by another 14 million tons.

The Main Directions for the Development of the National Economy in 1976-1980 earmarked an increase in the average annual gross grain yield to 215-220 million tons. This is 39 million tons more than in 1971-1975. Throughout the entire history of domestic agricultural production, our country reached such a level of grain production only in 1973 and 1976 when it obtained 222.5 and 223.8 million tons, respectively. In 1978 a new record was set in the history of domestic farming: grain production in the country amounted to 237.2 million tons!

Grain growers of the RSFSR made a weighty contribution to the gross grain yield: 136.3 million tons. As a result, Russian farmers sold the state 56.2 million tons of grain. Grain growers of the Ukraine and Kazakhstan poured into the homeland's grain bins 17.8 million tons and 16.8 million tons of grain, respectively. Belorussia procured 1,616,000 tons of grain. As a result, the country received 95.9 million tons of grain.

The country's farmers are showing a great concern for the grain fields in the fourth year of this five-year plan. It is no accident that for grain growers this year is becoming a decisive one in the fulfillment of their socialist commitments and also the fulfillment of the five-year plan for grain production and its sale to the state. 1979 is the first year of practical implementation of the historic decisions of the July (1978) Plenum of the CPSU Central Committee, which emphasized that increasing grain production, as usual, is still a most important task.

In 1979 grain growers of the Russian Federation intend to gather no less than 130 million tons of grain, the Ukraine -- up to 50 million tons, Kazakhstan -- 27 million tons, the Kuban' -- 9 million tons, and the Don area -- 8 million tons.

Under modern conditions there is practically no possibility of expanding planted areas or enlisting additional labor force as sources of expanded reproduction. The entire increase in the agricultural output under the Tenth Five-Year Plan, for example, is being provided exclusively through increased labor productivity. In order to accomplish this, the state and also the kolkhozes are allotting immense amounts of money for the development of the main directions of scientific and technical progress in the branch: comprehensive mechanization and chemization, land reclamation, advancement of the science of farming, and the introduction of the achievements of science and advanced practice.

Under the Tenth Five-Year Plan the volume of capital investments in the entire complex of work will amount to 170 billion rubles, which will make it possible by the end of the five-plan to increase the value of fixed production capital for agricultural purposes to 210 billion rubles. There will be a certain amount of territorial redistribution of capital investments. Thus while on an average for the country they will increase by 30 percent, in the nonchernozem zone of the RSFSR they will increase by 82 percent. The growth rates of capital investments will also increase in the Azerbaijan SSR, the Georgian SSR and the Armenian SSR.

The expanses of our homeland are immense: Our land stretches from the Baltic Sea to the Pacific Ocean, from the northern seas to the mountain tops of Pamir. But the reserves for expanding planted areas are quite limited. For each person in the country there is an average of less than a hectare of arable land -- 0.87 hectares. With the development of industry and housing construction and with the growth of cities, there is a tendency toward further reduction of this indicator. In such an industrial region as the Donets Basin there is now only one-third of a hectare of arable land per person -- half as much as in the Ukrainian SSR and one-third as much as in the country as a whole.

Under the conditions of scientific and technical progress, it is especially important to devote constant attention to more efficient and economical utilization of land resources. The creation of the best conditions for



increased fertility of the soil on each field, improvement in the structure of the planted areas, the introduction of scientifically substantiated crop rotations, a preponderance of grain crops in them and the strictest observance of technology in the production process -- these are the main paths to greater productivity and increased gross grain yields which must be followed by all farmers under the Tenth Five-Year Plan.

In the structure of the planted areas of the kolkhozes and sovkhoses each year about 17 million hectares are planted in annual grasses and about 66 million hectares in all feed crops. Yet in terms of the output of feed units they fall far behind grain crops. Expansion of the areas planted in grain crops at the expense of less productive crops and the replacement of winter crops previously designated for green fodder with grain crops would make it possible to augment the country's grain resources considerably.

Improvement in the structure of the areas planted in agricultural crops should be directed primarily toward improving the utilization of arable land. In 1980 grain crops will occupy more than 56 percent of the arable land.

On a number of farms certain specialists still underestimate the importance of crop rotations and assimilate them slowly. In addition to the fact that crop rotations serve as an important biological means of fighting against weeds, pests and diseases of plants, they also play a large role in soil protection. At the present time, mainly in the European part of the USSR, Kazakhstan, the Volga area and Siberia, more than 50 million hectares are subject to water erosion and 16-20 million hectares, to wind erosion.

The soil protection system of farming developed by the All-Union Scientific Research Institute of Grain Farming (Shortandy), which includes subsoil tilling and the introduction of crop rotations with clean fallow, made it possible to overcome wind erosion in the eastern regions of the country and to increase the productivity of agricultural crops.

In arid steppe regions the observance of crop rotations with clean fallow and a stable structure of the planted areas guarantee large yields. The natural and economic conditions for the production of grain in our country are quite varied and unimaginative adherence to rules in technology cannot be allowed.

The practice of the farms of Kazakhstan, the south of the Ukraine, Rostovskaya Oblast and Stavropol'skiy Kray has confirmed that the introduction of sub-surface anti-erosion cultivation of the soil and planting with stubble seeders make it possible to increase yields of grain crops by 5-6 quintals per hectare as compared to the usual system of farming in these zones.

In each specific region it is necessary to introduce regionalized strains of grain crops, to deepen production specialization and to conduct a complex of measures which will contribute to increasing the fertility of the soil.

Intensification is a process of expanded reproduction of grain on the basis of scientific and technical progress. It is characterized, above all, by an increase in the application of means of mechanization, chemization, electrification, land reclamation and the introduction of the most productive strains of grain crops as well as other achievements of science and practice. The advancement of the science of farming is also promoted by the important condition that the grain growers are armed with new and better implements of production. They make it possible to increase productivity 1.4-2-fold and to reduce labor expenditures by 30-40 percent.

Comprehensive mechanization of grain production, especially grain harvesting, is being further developed. Since 1974 the farms have been receiving more productive Niva, Kolos and Sibiryak grain combines which can handle 5-8 kilograms of grain per second, and grain cleaning and drying aggregates with a productivity of from 20-40 tons to 100 tons per hour. The new combines are distinguished by improved sealing and good productivity when the quality of the crop is high. With highly productive grains it is important to increase the handling capacity of the grain combines 1.5-2-fold and also to equip them with changeable parts for harvesting corn for grain, sunflowers and so forth.

With the strengthening of the material and technical base, the science of farming has advanced: There has been improvement in the quality of the cultivation of the soil and plowing with a simultaneous reduction in the time periods required for the work. And the plowing of fallow at optimal times makes it possible to increase grain productivity by 2-4 quintals per hectare and appreciably reduce the amounts of spring field work.

In addition to increasing deliveries of technical equipment to agriculture, it is also necessary to improve it. The farms' expenditures on the repair of individual tractors during the amortization period are frequently twice as great as the expenditures on their production. As a rule, not enough spare parts are sent and their quality is poor. This increases expenditures on repair and leads to idle time of machines during the busy periods of work as well as to a reduction of the shift and daily output of tractors and combines. The daily output of tractors on the kolkhozes and sovkhoses has decreased from 7.2 hectares in 1970 to 6.9 hectares per conventional standard tractor at the present time. There was a considerable reduction -- to 4.4 hectares -- in the Azerbaijan SSR, the Tadzhik SSR, the Armenian SSR and the Turkmen SSR.

Under these conditions it is especially important to organize two-shift work on each kolkhoz and sovkhos and three-shift work for drivers of K-700, K-701 and other highly productive tractors, so as to increase the output of the machines. But this is difficult to do on a number of farms since they are experiencing a critical need for machine operating personnel. Thus in the Georgian and other Trans-Caucasian and Central Asian republics, for every 100 tractors there are about 95 machine operators, that is, there are not enough of them even for work on one shift. There should be extensive dissemination of the experience in training machine operators which

has been accumulated, for example, in Rostovskaya Oblast and the Belorussian SSR where there is an average of 145 trained machine operators for every 100 tractors.

In order to carry out spring field work promptly, it is necessary to increase the farms' supply of tractors and agricultural machinery 1.6-2-fold. But frequently K-701 and T-150 tractors are delivered to the farms without the corresponding sets of working machines. As a result, only 50-60 percent of the capacities of the tractors are utilized on some farms. But even by the end of the Tenth Five-Year Plan the Ministry of Tractor and Agricultural Machine Building does not intend to produce the necessary selection of trailer and mounted machinery.

A number of difficulties can be successfully surmounted through the introduction of better organizational forms for the utilization of technical equipment -- mechanized teams, detachments and brigades.

For example, one now finds mechanized detachments everywhere or, as they are still called, complexes for preparing and applying fertilizers, for planting, harvesting and procuring feeds, plowing, and transporting the crops and other cargoes. In 1976 there were 100,000 harvest-transport detachments and complexes operating on the country's fields and in 1977 there were more than 280,000 of them.

At the present time the Ipatovo method is being applied everywhere and not just among the country's grain growers. The creative application of it makes it possible to achieve high efficiency in the procurement of feeds and in the harvesting of sugar beets and potatoes. In the past 3 years collectives of machine operators of Rostovskaya Oblast have achieved good results.

In terms of organization, the comprehensive mechanized harvest-transport detachment includes several teams or groups of workers: those who prepare the fields for the harvest, combine and transport teams, a team for harvest-the nongrain part of the crop, a team for initial cultivation of the soil, one for technical servicing and also one for cultural and domestic services. The work of the complex is organized according to the group method in teams and on two shifts. The technical equipment is concentrated on one or several fields so as to provide for continuity of all technological operations. It opens up the possibility of increasing the average daily output of trucks and harvesting aggregates more than 1.5-fold.

Technology for harvesting on an industrial basis is being applied successfully in the main zones of commercial grain production. This makes it possible appreciably to reduce the labor-intensiveness of individual processes and to increase the productivity of sets of machines and tractors. The additional yield of grain resulting from the reduction of losses reaches more than 1.5 quintals per hectare.



The industrialization of grain production is especially important for regions of the Volga area, the Ural area and Siberia where more than 40 million hectares of spring wheat and other grain crops are located in arid steppe regions which have a short growing period.

The transportation problem remains critical in the harvesting period. Grain combines stand idle almost one-third of the time just because of the shortage of automotive transportation during the time of mass harvesting. The transfer of large groups of trucks first to the southern regions and then to Urals, to Siberia and back costs the state a good deal of money and if the deadlines are not met, it leads to losses of the crop.

Many farms are finding large reserves for reducing expenditures when the grain is transported from the combine to the threshing floor and from the threshing floor to the grain receiving enterprises. As a rule, trucks are used for continuous delivery of grain from the combines. But it is less expensive to deliver the grain in trailer carts attached to tractors. One K-700 tractor with two trailer carts can handle four combines with a grain yield of 20 quintals per hectare. Automotive transportation can be utilized more economically for transporting grain from the threshing floors to the elevators. Agriculture needs more trucks, especially those with large cargo capacities.

Concentration of technical equipment in detachments, its placement in groups and flowline production technology provide for savings on transportation funds, good technical maintenance of the machines, and fuller utilization of spare parts. These devices also make it possible to take advantage of mutual assistance among machine operators and patronage work more extensively.

In implementing the program for the development of the national economy under the Tenth Five-Year Plan, which was adopted by the 25th party congress and concretized in the decisions of subsequent plenums of the CPSU Central Committee, it is most important to increase the efficiency of agricultural production through its intensification. Chemization is one of the most important factors in the intensification. It makes it possible to increase the production of agricultural products, above all, grain.

In 1978 agriculture received almost 80 million tons of mineral fertilizers. In 1980 their deliveries are to be increased to 115 million tons and the concentration of nutritive substances in them will also increase. The change in the structure of fertilizers so that there will be a greater proportion of phosphorus, concentrated and compound fertilizers is directed toward optimizing the ratios of the main nutritive substances: nitrogen, phosphorus and potassium.

The greatest additional yield is achieved with the application of compound fertilizers that contain two or three nutritive elements. Their production is increasing, but is still inadequate. Therefore many farms or agrochemical centers are successfully preparing fertilizer mixtures from fertilizers that contain only one nutritive element.

By the end of the five-year plan the annual volume of deliveries of mineral fertilizers for grain crops will reach 47 million tons. Moreover, every third ton of organic fertilizers used in agriculture is also intended for grain crops.

Deliveries of fertilizers to farms of the RSFSR and the Kazakh SSR are to increase 1.6-fold. The country's supply of grain will depend largely on the development of grain farming in these republics. The volume of mineral fertilizers being sent to the nonchernozem zone is twice as great as it was in 1975. The application of fertilizers is increasing appreciably in the republics of Trans-Caucasian regions and Central Asia and on the kolkhozes and sovkhozes of the Ukraine, Belorussia and the Baltic area.

By 1980 there will be almost 5 quintals of fertilizers in conventional units per 1 hectare of arable land as compared to 3 quintals in 1975. In many republics that are located in zones with adequate moisture and high proportions of irrigated land, and also in the nonchernozem zone of the RSFSR, more than 10 quintals of fertilizers will be applied to each hectare of arable land.

Under the Tenth Five-Year Plan the country will achieve more than half of the increase in the gross grain yield just as a result of the application of fertilizers.

The utilization of chemical and biological means of protecting plants from pests, diseases and weeds is becoming an indispensable part of the agrotechnology for the cultivation of grain crops. Deliveries of herbicides will make it possible to treat all of the areas planted in grain crops in order to fight against weeds. Measures for plant protection can potentially provide for saving 15 million tons of grain.

More than two-thirds of the area planted in grain crops is located in zones of unstable farming. In dry years the shortage of grain in the country as compared to average years amounts to 35-40 million tons. In order to obtain stable yields, it is intended to expand the irrigated areas planted in grain crops -- in the Volga area, in the Northern Caucasus, in Kazakhstan and in the south of the Ukraine.

It is planned to increase the plantings on irrigated land to 3.9 million hectares. With productivity at a level of 35.5 quintals per hectare, this will make it possible to increase the overall gross grain yield to 13.8 million tons. Additionally, it is intended to cultivate grain crops on more than 3.1 million hectares of drained land. The overall areas planted in grain crops on reclaimed land should increase to 7 million hectares by the end of the five-year plan and grain production should increase to 22.4 million tons.

The nonchernozem zone of the RSFSR is to play a large role in increasing the country's grain production. The average annual gross grain yields here reached 19.8 million tons under the Ninth Five-Year Plan. By 1980 grain production in this zone will have increased to 31 million tons or 13 percent of the country's overall yield.

The creation of zones with guaranteed grain production on irrigated land of the Volga area, the Northern Caucasus, the south of the Ukraine, Kazakhstan and other regions and also in the zone with inadequate moisture which includes the nonchernozem zone of the RSFSR, the Belorussian SSR, the southwestern regions of the Ukraine and the Baltic republics, will significantly increase the gross yields of grain and will reduce the branch's dependence on weather conditions. On the basis of expanded plantings of grain crops on irrigated and drained land and the cultivation of highly productive crops on these areas, especially crops such as winter wheat, barley, corn and rice, all union republics of the country, without exception, must provide for increased grain production in the necessary assortment.

Most of the grain production (90 percent), especially commercial grain, is concentrated in three of our republics -- the RSFSR, the Ukrainian SSR and the Kazakh SSR. But other republics are also making their contribution to solving the grain problem. Thus the republics of Central Asia are increasing grain production by 46 percent as compared to 1971-1975, mainly by increasing the areas planted in corn and rice and increasing their productivity on irrigated land. In the Baltic republics the increase in grain production will amount to 34 percent and in the Belorussian SSR, 30 percent. In the Moldavian SSR, because of such highly productive crops as corn and winter wheat, the gross grain yields will increase 1.5-fold.

Under the Tenth Five-Year Plan the structure of grain production is improving. Above all, there is an increase in the proportion of forage crops, including corn, pulse crops, barley, oats, sorghum and so forth. As a rule, they produce high and stable yields, which makes it possible to augment reserves of forage grain for the mixed feed industry.

The country is experiencing a need to increase the production of grain from groat crops: rice, millet and buckwheat. In the structure of grain production there is an increased proportion of grain from the more productive winter wheat with a reduction in the proportion of spring wheats. But we must not allow a reduction in the areas planted in rye in regions which are favorable for its cultivation, something which is frequently observed in practice.

As a result of increasing the areas planted in rice and increasing its productivity, rice production will reach 2.84 million tons by 1980, as compared to 2 million tons in 1975.

Great unutilized reserves for increasing the gross yields of grain crops lie in further strengthening the material and technical base for seed growing and changing over to the cultivation of new, more productive strains and hybrids: Odesskaya 51, Krasnodarskaya 39 and Il'ichevka winter wheat; Saratovskaya 42, Grekum 114 and Ural'skaya 52 spring wheat; Krasnodarskiy 73 oats; and Donetskii barley.

New strains which are well adapted to local conditions are especially necessary in the eastern regions of the country. In the European part of the

USSR as early as the 1960's we created and introduced the famous highly productive Bezostaya 1 and Mironovskaya 808 wheats and subsequently, the Aurora and Kavkas strains. But the cultivation of several of them under the severe Siberian conditions did not produce the desired results.

But thanks to the achievements of scientific and technical progress, great possibilities are opening up for the rapid isolation of new strains that are adapted to local conditions. Scientists of the Institute of Cytology and Genetics and the branch of the All-Union Institute of Plant Growing in the Novosibirsk Akademgorodok isolated the so-called radiation strain of Novosibirskaya 67 wheat. Ancient strains from Yakutiya and Omskaya Oblast served as the initial material for it. The highly productive Novosibirskaya 67 which is well adapted to local conditions is included in the group of strong wheats with a high protein and gluten content. And other strains are coming to replace Novosibirskaya 67: Zarnitsa, Sayanskaya 55, Pirotriaks 28, Sibiryachka 4 . . .

As we know, the kolkhozes and sovkhoses of the Russian Federation produce most of the country's grain. And Siberia and the Far East produce every fifth ton of Russian grain. Implementing the decisions of the 25th CPSU Congress, farmers are working so that in the near future not every fifth ton, as is now the case, but every fourth ton of grain in the Russian bins will be from Siberia. To achieve this it will be necessary to put all reserves to work and to actively fight against losses of the product.

The weather conditions have been unusual in the eastern regions: the cold and rain impeded the planting and ripening of the crop in a number of places even as they contributed to the accumulation of moisture supplies on the fields. All kinds of support should be given to the initiative of the farms which, proceeding from statewide interests, are continually expanding the areas planted in grain crops and striving to obtain large yields.

During the period of the Tenth Five-Year Plan the principle of firm procurement plans and the principle of providing incentives for farms which have above-plan sales of products to the state will be retained. These principles have proved themselves in practice. But a firm procurement plan is established in a greater amount for each subsequent year of the five-year plan. And the volume of above-plan grain procurements in terms of the firm plan has been reduced from 35 to 17 percent. This creates a more stable base for satisfying state needs. Thus an increase in procurements according to the firm plan for grain forage crops, especially barley and pulse crops, reflects the state's growing need for these kinds of grain for the mixed feed industry.

It is mandatory for each farm to fulfill the overall volumes of procurements in the complete assortment stipulated in contractual agreements (according to the plan and in excess of the plan).



The farmers must provide not only for stable growth of grain production and the necessary ratios among the various kinds of grain, but also for high quality of the entire assortment of grain, and they must make sure that it becomes less expensive and more profitable.

Without this it is impossible to achieve a reduction in the costs of food-stuffs and consumer goods. The grain farm can solve this problem with the comprehensive development of a system of branches that are technologically related to the production, storage, processing and consumption of grain.

In recent years the products from grain crops have amounted about one-fourth of the gross agricultural output. The efficiency of the agricultural branch depends to a considerable degree on the profitability and income from grain production.

The main ways of increasing the return on invested funds and further raising the level of production profitability are to increase productivity, to improve the quality of the grain and to reduce production costs.

In the current stage new and greater demands are being placed on the grain production branch: the country is extremely in need not only of an ever increasing volume of grain, but also high-quality grain in the appropriate assortment. The solution to these problems is the responsibility of the grain growers.

In the decree of the CPSU Central Committee and the USSR Council of Ministers, "On Additional Measures for Providing for the Harvest of the Crops, Procuring Agricultural Products and Feeds in 1979 and Successfully Conducting the Wintering of Livestock in the Period of 1979/80," it is noted that conducting the harvest of the crops in shorter periods of time and without losses, fulfilling and overfulfilling the plan for grain procurements and promptly fulfilling assignments for the delivery to agriculture of harvesting equipment, tractors, trucks and other material and technical supplies constitute a most important statewide task of party, soviet, agricultural, trade-union and Komsomol organizations, kolkhozes and sovkhoses, procurement and transportation enterprises, and industrial enterprises.

During harvest time the grain field is the farmer's main concern. Under the conditions of the hot and dry summer of 1979, the kolkhozes and sovkhoses of the country had to utilize all additional reserves for augmenting the homeland's grain supply. Naturally, the greater the area and the larger the yield gathered from grain fields, the more fully the state's need for food-stuffs and raw materials will be supplied. Specialists are well aware of the sources for increasing grain production under present conditions: painstaking care of winter and spring spike crops, and additional and after-harvest plantings of grain crops and corn. Moreover it is necessary to make sure that on each kolkhoz and sovkhos the harvested area corresponds to the planted area.

Grain growers of the Kuban' Kolkhoz in Ust'-Labinskaya Oblast in Krasnodarskiy Krai were among the initiators of the all-union competition for achieving greater yields as a result of more efficient utilization of land and technical equipment and improvement of production technology and labor organization. They are obtaining 50 quintals of grain per hectare and the brigade of Hero of Socialist Labor Mikhail Klepik is obtaining 57 quintals. All of the areas planted in winter crops on the farm were promptly top dressed and the areas planted in corn are being cultivated with simultaneous application of fertilizers.

Farmers of Rostovskaya, Donetskaya, Krymskaya and a number of other oblasts are distinguished by their initiative and creative work. They have extensively organized the irrigation of large areas planted in grain crops, which guarantees large yields. Possibilities like these exist in many places. Sufficient water has been accumulated in the reservoirs and ponds and a considerable proportion of it should be utilized for irrigating the fields. Correct action is being taken in places where the workers arrange temporary pumping stations, canals and pipelines for irrigation.

This year areas planted in corn can significantly augment the country's grain resources. The more so since at the present time in the Caucasus, the Ukraine, Moldavia, Central Asia, the central chernozem oblasts, and the Volga region, the areas planted in corn for grain have been expanded appreciably. Managers of kolkhozes and sovkhoses are trying to arrange things so that care for the areas planted in corn on the farms is conducted according to grain technology which makes it possible to obtain a crop of ripe ears. It is possible to raise corn for silage and green fodder on additional planted areas and by expanding the cultivation of corn on irrigated sections. An example is provided by the collectives who are competing for obtaining 100 quintals of corn grain on irrigated and 60-70 quintals on nonirrigated land.

Repeated plantings are also very important for increasing the gross yields of grain and feeds. On the Volga-Don Sovkhoz in Volgogradskaya Oblast, after harvesting winter wheat for grain, the farmers plant some of the fields in buckwheat and gather 18-20 quintals of it per hectare. Because of after-harvest plantings, the Oktyabr' Kolkhoz in Millerovskiy Rayon in Rostovskaya Oblast is obtaining an additional 16-18 quintals of millet grain per hectare. The success of the second crop depends on prompt harvesting of the predecessors and skillful preparation of the fields as on planting.

Managers and specialists of the farms must attentively analyze the structure of the grain fields and, in places where it is possible, expand the areas planted in the most productive strains and hybrids of agricultural crops for the 1980 harvest.

The entire economic service in rural areas is called upon to play a large role in this. Their most important task is to find additional internal reserves for increasing gross yields, reducing production costs and further increasing the economic effectiveness of grain production directly on the farms.

The study of the development of the process of interfarm cooperation and agro-industrial integration in grain production is worthy of a great deal of attention. In certain regions of the country, for example, in the Volga region (Saratovskaya and other oblasts), individual specialized farms raise high-quality seed material for grain crops following the principles of interfarm cooperation. As a result, the participants in this cooperation achieve increased productivity and improved quality of the grain. The experience of the Baltic republics is also interesting. There grain-receiving and agricultural enterprises are included in unified, so-called regional production associations.

In keeping with the tasks set by the July and November (1978) plenums of the CPSU Central Committee and the tasks that ensue from the speeches of General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev, the collectives of the kolkhozes and sovkhoses have developed and are implementing concrete measures for further improving socialist competition for the fulfillment and overfulfillment of the plan and commitments made for 1979. The initiative of enterprises of Rostovskaya Oblast, "To work with none falling behind," is being extensively disseminated here.

And during the days that remain of the 1979 harvest there is no more important task than to gather the crop without losses, to preserve all of it and to multiply the homeland's grain supplies. This will make it possible to lay a firm foundation for the fulfillment not only of the annual plan, but also that of the Tenth Five-Year Plan as a whole.

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## PROGRESS IN DEVELOPMENT OF THE VIRGIN LANDS HAILED

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[Article by V. Manyakin: "A Quarter of a Century Since the Beginning of the Development of the Virgin Lands"]

[Text] "On the virgin lands millions of Soviet people have continued to exploit the experience of the revolution, to multiply its achievements under new historical conditions, and to create the living experience of the triumphant construction of a developed socialism."

L. I. Brezhnev

The Communist Party has no more lofty aim than the steady enhancement of the welfare of the Soviet people. The accomplishment of this task is bound up in the closest possible manner with the successful development of the agricultural sector of the national economy because, as V. I. Lenin pointed out, without a strong agricultural base "it is impossible to carry out any economic construction." The problem of providing the country with a dependable supply of food and agricultural raw material has always been and continues to be at the center of the CPSU's attention.

Occupying a special place in the advance of agriculture is the mass development of the virgin and long-fallow lands, a project begun 25 years ago. Today we see revealed with total clarity the political, social and economic importance of the course mapped out by the historic February-March (1954) plenum of the CC CPSU. After reviewing the matter of further increase of the country's grain production and the development of the virgin and long-fallow lands, the plenum declared that "the current level of grain production with respect to both the gross output harvest and its commodity aspect, is failing to meet the growing needs of the national economy. There has evolved a discrepancy between the amount of grain being made available to the state and the increasing scale of the expenditures of this grain. The amount of grain left on the kolkhozes after they have fulfilled their commitments to the state is also failing to satisfy all the requirements of the public sector of the kolkhozes."



This disparity resulted at the time from a number of causes, one of which was the curtailment of the areas planted to grain. The 1953 crop area was 4 million hectares less than in 1940 and the gross grain harvest was 13.1 million tons less than in 1940. At the same time, we saw the development of the long-fallow and virgin lands in the regions of Kazakhstan, Siberia, the Urals, the Volga and part of the North Caucasus become in a short period an important and wholly authentic source of increased grain production.

The eastern regions of the immeasurable land areas also attracted attention in the earlier period. V. I. Lenin gave warm support to the Petrograd workers' idea right after the victory of the October Revolution to begin work on the establishment of agricultural enterprises on the unoccupied lands of Kazakhstan. In keeping with Vladimir Il'ich's assignment, construction was begun on a railroad from Petropavlosk to Kokchetav; it was called at the time a "key food artery." This main line was supposed to link the territory of Northern Kazakhstan with the center of Russia and become a road for the development of the new regions.

We should mention that the attempt to exploit the virgin lands of Kazakhstan, the Altay, Volga and other regions was also undertaken after the beginning of the Patriotic War. However, at that time too they had not acquired or sufficiently developed the necessary reserves and rear units which could have provided for well-planned work. Several years were needed for an accelerated and purposeful increase of the industrial production which delivers to agriculture the tractors, agricultural machines and harvesting equipment capable of making this task a realistic one. Also a young generation had grown up and it could be tasked with development of the virgin lands.

And once more the matter of the virgin land appeared on the agenda. The February-March (1954) plenum of CC CPSU submitted as the most important state task the expansion of the grain crop areas in the 1954-1955 period by developing no less than 13 million hectares of the long-fallow and virgin lands.

To achieve on-schedule accomplishment of the work of developing the virgin and long-fallow lands provision was made for delivery to the regions of new land development in 1954 alone of 120,000 tractors, 10,000 combines and a corresponding amount of other agricultural equipment; also, for technical servicing of the machine and tractor inventory the necessary number of motor vehicles and mobile motor vehicle repair shops, tank trucks, refuelling trucks, stationary oil containers, tools and equipment.

The developed work of cultivating the new lands showed that the assignment for plowing suitable tracts can be increased because in 1954 alone the plowing encompassed 17.2 million hectares. The January (1955) plenum of CC CPSU approved the CC CPSU and USSR Council of Ministers decision concerning expansion of the crop areas on the virgin and long-fallow lands by an amount up to no less than 28-30 million hectares. The planting area of all

the agricultural crops in the regions for development of the virgin and long-fallow lands amounted in 1956 to 80.2 million hectares, including 59.8 million hectares of grain crops.

The development of agriculture in the regions which had been considered unsuitable for intensive and sophisticated farming became possible because, as a result of the development of socialist science and the efforts of the people, our country had by that time attained a level of economics, a growth of its national production, and a development of the industrial complex which enabled it to organize and mold a highly productive agricultural production capability in the eastern part of the country, one of enormous extent.

It was a quarter of a century after that that through the will of the Communist Party and the entire Soviet people, the boundless expanses of Kazakhstan, Siberia, the Urals, the Volga and other regions saw the development of a creative work project unprecedented in scale and world history--the exploitation of the virgin and long-fallow lands. It was proof of the implementation of the Leninist ideas on the utilization of the country's enormous land wealth.

The development of the virgin lands demonstrated to the entire world what L. I. Brezhnev called "the noblest moral qualities of the people." It was the product of the indissoluble alliance of the workers, peasants and intelligentsia. It manifested with special fullness and clarity the leading role of the working class, its self-sacrifice, its strength of discipline, and its deep devotion to the party's cause. The source of the virgin land traditions go back to the enduring revolutionary and labor tradition of Krasnaya Presnya and the Kirov Plant, Magnitka and the Turksib [Turkestan-Siberian Railroad], and the builders of the Stalingrad Tractor Plant, the copper giant in Balkhash, and the coal industry of Karaganda. The working class brought to the virgin land the industrial expertise of labor. The enormous successes achieved in the development of the virgin land were the result of the dedicated labor of the rural detachment of the working class--the machine operators and all the workers of the sovkhozes, who carried on their shoulders the principal burden of the progress of the new lands.

In answer to the Communist Party's call hundreds of thousands of patriotic volunteers came to Kazakhstan from the Russian Federation, the Ukraine, Belorussia and the other republics. Through their common efforts the representatives of all the country's nations began the cultivation of the virgin lands. And it is no coincidence that many of the virgin-land sovkhozes bear the names of cities and rayons of the brotherly Soviet republics.

We will never forget the achievement of our remarkable young people and Komsomol members of the 1950's, the conquerors of the virgin lands, the people who breathed life into the gigantic steppe expanses and fashioned them into an area for the service of man. To the uninhabited regions of Kazakhstan, Siberia and the Urals, the Volga and the Far East more than 500,000 Komsomol

volunteers came on travel authorizations. They provided an example of selfless labor and demonstrated their profound devotion to their party and their people.

The working class throughout the country is taking an active part in the building and maintenance of the virgin-land sovkhozes. In those unforgettable years there was an endless flow of new equipment to Kazakhstan: tractors from Volgograd, Chelyabinsk, Khar'kov and Minsk, trucks from Gor'kiy and Yaroslavl', agricultural machines and spare parts for them from Uzbekistan, the Baltic and other regions of the country.

The result of this all-embracing work was a considerable expansion of the cultivation area in the regions of development of virgin and long-fallow lands. This expansion is apparent when one looks at the data in Table 1.

Table . Agricultural Crop Cultivation Areas in the Principal Regions of Development of Virgin and Long-Fallow Lands (millions of hectares)

	1953	1978	Increase
Total cultivated area in the principal regions of development of virgin and long-fallow lands	48.6	94.1	45.5
Of these RSFSR	38.9	58.2	19.3
including			
regions of Western Siberia	12.4	18.4	6.0
regions of Eastern Siberia and the Far East	5.3	10.1	4.8
Ural regions	9.1	13.5	4.4
Volga regions	12.1	16.2	4.1
Kazakh SSR	9.7	35.9	26.2

We should take note of the unprecedentedly high rates which characterized the development of new lands in the country. Thus, in 1953 the cultivation areas amounted to 9.7 million hectares, which was twice as much as the figure for 1913. This doubling of the cultivation area was thus achieved in 40 years. In the period of development of the virgin and long-fallow lands it required only 5 years to triple the cultivation area. Moreover, where the first increase produced a 5.5 million hectare growth in the cultivation areas, the second one was 19 million hectares. In the Russian Federation and the regions of Siberia, the Far East, the Urals and the Volga, where the virgin land was developed, the cultivation areas showed an average increase of 400,000 hectares a year in the 1913-1953 period and an average yearly increase of more than 2.8 million hectares in the 1954-1958 period. In the principal regions of development of new lands, especially in Kazakhstan, nearly one-half of the cultivation areas is occupied by plantings of the main food crop--wheat.

The rapidity with which the newly developed lands were incorporated in the agricultural turnover made possible a considerable increase in the production of grain in the country. The following data bears witness to this:

Table 2.

Average yearly Gross Harvest (millions of tons)	1949-1953	1974-1978
USSR	80.9	198.5
including the principal regions of development of the virgin and long-fallow lands	22.7	67.9
of these:		
RSFSR	18.8	46.7
Kazakh SSR	3.9	21.2

Before the development of the virgin and long-fallow lands in the 1949-1953 period average yearly production of grain in these regions amounted to 22.7 million tons with an average yield of 6.7 quintals per hectare. In the 1954-1978 period the average yearly production of grain in the principal regions of development of the virgin and long-fallow lands amounted to 67.9 million tons with an average yield of 9.7 quintals per hectare.

In the last 25 years the principal regions of development of new lands produced 1.487 billion tons of grain, including an additional two-thirds of a billion tons obtained from the virgin and long-fallow lands. In the Russian Federation the grain harvest in the regions of development of the virgin lands increased 2.2-fold in this period; in Kazakhstan the increase was 4.7-fold.

The establishment of large sovkhoses with highly mechanized production on the developed tracts made possible a sharp increase in the sale of grain to the state. The data in Table 3 makes this apparent.

Table 3. State Purchases of Grain (millions of tons a year average)

	1949-1953	1974-1978
USSR	32.8	75.9
including the principal regions of development of virgin and long-fallow lands	9.9	31.1
of these:		
RSFSR	8.1	19.2
Kazakh SSR	1.8	11.9

In just 25 years Kazakhstan and the regions of Siberia, the Urals, the Far East and the Volga obtained 722 million tons of marketable grain, of which



about 380 million tons came from the newly developed lands. In the 1949-1953 period the state obtained from the virgin lands 30 percent of the total volume of grain procurements and in the 1954-1958 period this figure was already 53 percent. Along with the Russian Federation and the Ukraine, Kazakhstan became the largest production base for commodity grain.

Through the efforts of the Soviet people the virgin land was transformed into a dependable granary in the country's east and it imparted a stable complexion to the development of all of our agriculture.

The once barren expanses became not only a grain but also a large livestock breeding shop. Growing up on the virgin soil steppes are factories for milk, eggs and wool. Every year sees an increase in the number of cattle and the productivity of the herds and flocks. In 25 years the herd of cattle in the principal regions of development of new lands increased from 16 to 30 million heads. The proportion of total production represented by the output of the virgin-land farms increased and has now reached 23 percent for meat, 22 percent for milk, 23 percent for eggs and 44 percent for wool.

The state outlays for development of the virgin and long-fallow lands had already paid for themselves in the first years of exploitation of the virgin land--the state obtained net income amounting to billions of rubles.

On a planned and systematic basis and in ever increasing amounts the regions of virgin-land development have been supplied with production facilities of both the agricultural and the operational type. Suffice it to say that in these regions the increase of the production fixed capital of the sovkhozes and grain procurement enterprises (exclusive of depreciation) amounted to 14.7 billion rubles. In the future too this capital will provide for further increase of production of agricultural output and growth of income.

The impact of the virgin lands is felt not just in the additional harvest of grain. The addition obtained on the grain balance sheet has enabled the state to improve the territorial distribution of labor in agriculture. Thus, the development of the new lands in the eastern part of the country enabled the Ukraine, for example, to nearly double the area for cultivation of sugar beet (from 958,000 hectares in 1953 to 1.811 million hectares in 1978) and sunflower seed (from 878,000 to 1.688 million hectares respectively).

The development of the virgin lands gave a powerful impetus to the development of animal husbandry in the country; in 25 years the production of output more than doubled in this industry.

However, it was not easy to accomplish all this; there were special difficulties. The virgin lands went through a trying period, one of ups and downs and years of successes, serious failures and difficulties.

The early 1960's were an especially difficult period for the virgin lands. It was then that the sovkhoses and kolkhozes began to employ agrotechnical methods without taking into account the virgin-land farming experience. The fields were clogged and wind erosion developed on enormous tracts. The farms obtained low yields and suffered losses. The recommendations of the local scientists were not always heeded; instead, dogmatic methods of farming were maintained in a willful manner. The importance of comprehensive development of the new regions was underestimated and the necessary attention was not given to the production of fodder and the development of animal husbandry. The specialists who came to the virgin lands from the various zones of the country were not familiar with the characteristics of the local farming, relied on their own experience in this work, and often obtained unsatisfactory results. Seed growing was not properly organized. There was not even any talk of using mineral fertilizers and chemical means of combatting weeds, pests and the diseases which afflict agricultural crops.

The result of all this was that after 1956 the yield capacity of the grain crops began to decline, even though the years up to 1963 were not especially unfavorable as far as weather conditions are concerned. It turned out that the system employed for operation of the grain economy is not right for the soil and climatic conditions.

It was first of all necessary to find a method of combatting wild oats and wind erosion. Help in solving this problem came from T. S. Mal'tsev, a Kolkhoz agriculturist from Kurganskaya Oblast and an honored academician of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin]. He suggested delaying the planting until after full sprouting of the wild oats. This persistent weed is destroyed by preplanting cultivation. The suggested method is used before this. The task of combatting wind erosion involved the introduction of the nonterraced soil protection system of soil cultivation developed by the All-Union Scientific Research Institute of Grain Production under the supervision of VASKhNIL academician A. I. Barayev.

The instability of the grain production exacerbated the economic condition of the farms and caused extensive personnel turnover. People became aware of a drastic shortage of machine operators and agricultural specialists. And if you add to this the numerous reorganizations and the disregard for economic laws, then you get an idea of how timely and wise were the comprehensive measures for the advancement of agriculture as worked out by the March (1965) CC CPSU plenum on the initiative of L. I. Brezhnev.

For the new, still to be strengthened virgin-land sovkhoses the decisions of the plenum acquired a quite special importance. It was only the timeliness and scope of the measures adopted by the party which enabled the cultivated virgin land economy to rapidly regain its strength, to overcome the past errors and deficiencies, and to proceed with confidence to develop and consolidate the economic system.

The March CC CPSU plenum, employing a new approach, tackled the problem on a widespread and global level and demonstrated the vitality of the soil protection system from both the theoretical and practical standpoint. The task was not an easy one. It was necessary to develop and manufacture the requisite complex of soil cultivating and planting machines and to teach every machine operator how to become familiar with the new equipment and how to use it skillfully. This matter was accorded state importance. In 3 years there took place what amounted to a technical retooling of all the virgin-land farms of Kazakhstan and Altay—an example of an undertaking which was quite unique in world experience. The plants of Tselinogradskaya and Karagandskaya oblasts, Altayskiy Kray and other eastern regions produced more than 240,000 antierosion cultivators, more than 200,000 stubble sowing machines, and more than 130,000 needle-type harrows. For the country as a whole nonterraced cultivation of the soil is now in progress on an area of 34 million hectares and the planting of grain crops is being carried out by special sowing machines on an area of 35 million hectares.

With the development of the virgin and long-fallow lands there arose a need to accelerate the development of "productivity rear services"—the chemical industry, machine building and the construction industry; it was also necessary to increase the power-worker ratio on the kolkhozes and sovkhoses. The country established a physical base which in the second half of the 1960's had already brought about a major change in the technical retooling of all of agriculture and had made possible the establishment of a dependable economic basis for its further growth.

The virgin land is not just a collection of rich fields. It is an area which has generated numerous enterprises of tractor and agricultural machine building and the processing of the output of the fields and farms and the chemical and other industries. A powerful agroindustrial complex has been evolved. "Travel in a plane over the steppe expanses," says L. I. Brezhnev in his book "Tselina" [The Virgin Land], "you will see not only grain fields but also strips of asphalt roads, settlements, railroad tracks, electric power lines, elevator buildings, and large plants, factories and cities. All this has given impetus to the potent virgin-land grain industry in the former feather grass area."

The principal region for the development of the virgin and long-fallow lands is Kazakhstan. It set the example for the extent of the enormous organizational and creative work accomplished and for the changes which have taken place both in agriculture itself as a result of the ploughing of the new lands and the construction of new agricultural enterprises but also in the character and style of all of life, including urban life, and in the development of the entire agroindustrial complex.

In comparison with 1953 the republic's industrial output volume has increased more than nine-fold. The period has been marked by the appearance not only of new plants, combines, factories, mines and coal pits but also special-purpose territorial production complexes like the Karatau-Zhambul,

Pavlodar-Karaganda and Kustanay complexes and industrial centers like the Temirtau-Karaganda and Kustanay centers. New cities and workers' settlements sprang up there, electric power lines were built, and railroads and highways were constructed.

Fundamental changes in Kazakhstan's agricultural production took place after the March (1965) plenum of CC CPSU. The material and technical base was strengthened. In the 1971-1978 period alone 19 billion rubles of the capital investments of the state and kolkhozes were used for the development of Kazakhstan's agriculture; this was 12 billion rubles more than the amount used in the 8 years preceding the March plenum of CC CPSU. At the beginning of 1976 the production fixed capital of the sovkhozes and kolkhozes was 15 billion rubles or twice as much as in 1965. The power-worker ratio is 39.6 horsepower per worker and 148 horsepower on 100 hectares of cultivated area. The average per farm includes about 100 tractors, 50 grain harvesting combines and many other pieces of agricultural equipment. Electricity is being employed to an ever greater extent in production and in the everyday life of the village. Electronics and automatics have become a dependable assistant for the farmer and the livestock breeder.

Nearly complete mechanization of grain production and its conversion to an industrial basis have been made possible by the establishment of large sovkhozes, which number more than 2,000 in the republic. Kazakhstan can now rightly be called an area of sovkhozes. They are essentially large factories for grain, meat, milk and other products. In only a quarter of a century on the ploughed virgin lands we have built for the workers of agriculture thousands of well-planned settlements with municipal and everyday conveniences. The sovkhoz and kolkhoz farmsteads have become centers of culture. On them have been built clubs, movie theaters, libraries, schools and preschool institutions.

On the arid steppe expanses of Kazakhstan there have been built such large irrigation systems as the Ural-Kushum, the Merkenskiy and the Kzyl-Kum and new irrigated tracts have been established in these zones. An irrigated oasis has been set up in the area where the Arys'-Turkestan Canal was built. Construction was completed on the Chardara water reservoir at Syr Dar'ya, the Kapchagay reservoir on the Ili River, and others.

Consistent and purposeful work directed to maximum utilization of the agricultural areas and the material and technical and labor resources has made it possible to increase the production of agricultural output. In the last 8 years the average yearly volume has reached 7.6 billion rubles as compared to 5 billion rubles in the 8 years prior to the March plenum of CC CPSU. In this same period average yearly production of grain amounted to 23 million tons, which is 39 percent more than the average yearly indicators for the 1958-1965 period. Increases were achieved for the state purchases and proportion of wheat of the sturdy and hardy and most valuable varieties; it constituted 63 percent of the total volume of procurements. The production and procurement of grain is becoming increasingly stable and



the marketability of the grain produced by the sovkhozes and kolkhozes has reached 63 percent. This is a very important indicator of the economic effectiveness of the industry. Even the most severe droughts (1974, 1975 and 1977), which periodically slow up the development of productive farming, cannot now halt the trend which took shape back in the Eighth Five-Year Plan and has now become more firmly established--the trend toward overall growth of the grain harvests. The average grain yield of the republic in the 10th Five-Year Plan is 1.6 times as great as it was in the Seventh Five-Year Plan. It is significant that in the principal grain regions of the republic the rates of this growth are appreciably higher. During this period the grain yield in Kustanayskaya Oblast showed a 5 quintal per hectare increase and in North Kazakhstan Oblast an 8 quintal per hectare increase. The eastern and southern oblasts of Kazakhstan also are making a substantial contribution to the increase in grain production.

A dependable way to achieve guaranteed grain harvests is through development of land improvement and through improvement of the existing irrigated lands. In the 10th Five-Year Plan the average yearly yield of grain crops was 8.2 quintals per hectare more than the yield for the 1966-1970 period. While occupying only 4 percent of the total planting area, the irrigated lands furnish more than 20 percent of the farming output. A great deal of work in the field of water management construction has been accomplished in Kzyl-Ordinskaya, Chimbentskaya, Alma-Atinskaya and Taldy-Kurganskaya oblasts. These oblasts' success in setting up vast rice farming tracts has enabled them in the last 8 years to achieve an 8.5-fold increase in the Kazakh SSR production of this valuable crop in comparison with the corresponding period before the March (1965) plenum of CC CPSU.

The farmers of Kzyl-Ordinskaya Oblast are obtaining up to 50 quintals of rice per hectare. The production of this valuable food crop in Kazakhstan amounted to approximately 500,000 tons and consequently the proportion of this production in the overall Union purchases was considerably increased. Corn planting developed at rapid rates. Since the March (1965) plenum of CC CPSU the procurement of corn has increased seven-fold. Increases have been achieved in the production of cotton and other industrial crops, vegetables, fruits and grapes. The volume of procurements of potatoes has been considerably increased. Production of meat, milk and wool is 1.3 times the former figure and production of eggs has doubled. These figures indicate that through its dynamic development of agriculture Kazakhstan has become one of the large grain and livestock breeding bases of the country. Where the republic averaged 25 million tons of grain a year in the Seventh Five-Year Plan, in the current plan the amount is more than 25 million tons a year. In 1978 this indicator came to nearly 28 million tons--five times as much as the 1953 figure. In a quarter of a century 466 million tons of grain were produced and 269 million tons were poured into the bin of the motherland.

Today there are more than 35 million hectares of plowland in the republic; approximately 100 million hectares of pasture land have been irrigated; the areas for cultivated and estuary hay harvesting have been expanded; and

production of corn for silage has been sharply increased. These measures have accelerated the development of animal husbandry. The number of cattle and sheep in the republic has doubled and the number of hogs has increased 5.7-fold, purchases of meat and milk fourfold and wool 3.5-fold.

In analysis of the role of the virgin land one very important aspect is unfortunately usually overlooked--the quality of the virgin-land grain and the significance of the virgin land in the production of firm and hardy crops of wheat. In the All-Union procurement of the hardy varieties of wheat Kazakhstan's relative share in the last 10 years has averaged 78 percent and in some years has gone up to 90-92 percent. Two oblasts--Kustanayskaya and Tselinogradskaya--furnish about 40 percent of the All-Union procurements of firm and hardy wheat. The Kazakhstan virgin lands have today been transformed into a dependable grain shop for the country and they have become a unique storeroom for high-quality grain.

However, the regions of development of the virgin and long-fallow lands still face many problems requiring solution: they need their own harvesting work technology and a complex of new, highly-productive machines and equipment. A great deal needs to be done to reinforce the capacities for processing and storage of the grain. There are not enough elevator and warehousing facilities and there is lacking a sufficiently reliable base for postharvest drying of the grain.

One of the large reserves consists of improvement and development of the saline lands, which number hundreds of millions of hectares. It is at least necessary to incorporate in the operational turnover those lands which do not require improvement. This will result in a considerable strengthening of the fodder base and will make some of the plowlands available for the farming of grain crops.

For the future the plans for northern Kazakhstan call for the construction of a large irrigation system through recycling of some of the discharge from the Siberian rivers. Of course, this requires preparation starting from this very day. We need a network of scientific stations and supporting points and we need to carry out an extensive complex of work projects designed for the fullest and most effective utilization of the Siberian water. Still a matter of very great urgency for the conditions of virgin-land farming in Kazakhstan is the problem of finding new, highly productive varieties of spring wheat. Science, we believe, must devote more attention to study of the effectiveness of the use of fertilizers on the virgin lands. The scientists have a solemn duty to come to the aid of the virgin-land livestock breeders.

In the last few years our country has done an enormous amount of work to strengthen the production and technical base for agriculture. It is currently preparing long-range plans for further acceleration of the rates of growth of agricultural production by efficient utilization of all the resources at its command.

The July (1978) plenum of CC CPSU mapped out the paths to further increase of the production of output on the fields and farms.

The virgin-land organizations possess all the requirements for increasing the harvests of grain and other crops and for enhancing and developing animal husbandry at accelerated rates. In the last number of years we have done a great deal but we are a long way from having done everything possible. It is important to increase the number of cattle and to step up their productivity. To advance this industry it is necessary to proceed with the same energy, purposefulness and persistence that the pioneers applied to the task of transforming into fruitful fields the steppes which had been untouched for centuries.

The development of the virgin and long-fallow lands comprised an entire epoch in the economic development of agriculture and all of national production; it became the embodiment of the party's plans for advancement of the country's productive forces. The large-scale commitment of enormous land expanses served as the foundation for the subsequent growth of agricultural production and for its intensification. "All this is as essential for us as the air we breathe," said L. I. Brezhnev at the plenum of the Akmolinsk Party Obkom on 2 July 1955. "We need it for the creation of a powerful striking force in the East, for peaceful construction and for defensive purposes. What kind of Bolsheviks will we be if we do not want to look into the future, if our responsibility ends with today." The economic effect of the development of the virgin and long-fallow lands can be estimated on the basis of the value obtained only from the national economic standpoint and in terms of an extended period.

The motherland has been deeply appreciative of the achievements of the virgin-land farmers and has awarded orders and medals of the Soviet Union to 97,000 persons. As many as 1.34 million persons have been awarded medals "For development of the virgin and long-fallow lands" and 270 of the most outstanding conquerors of the virgin land have received the high rank of "Hero of Socialist Labor."

In implementing its agrarian policy the party is constantly guided by the ideas and principles of the Leninist cooperative design and it is developing these ideas and principles further in the context of the specific historical conditions. The current stage of development requires accelerated rates of development of agriculture, full mechanization of the cultivation of the most important crops, and the conversion of animal husbandry to an industrial basis.

In the solution of these problems a prominent role was played by the March (1965) plenum of CC CPSU, which laid the foundation for the current stage of implementation of the Leninist agrarian party policy. Persevering in the principles of the party line developed at this plenum, the 23rd, 24th and 25th Congresses, the CC CPSU plenums and the decisions on agricultural

questions, developed and elaborated on the agrarian policy in its current stage and enriched it with new conclusions, tenets and practical recommendations. As a result of the implementation of these, our agriculture has made a major advance economically and socially.

The material and technical base of agriculture has been significantly strengthened. A great deal has been done in the matter of developing the industry which supports this agriculture. In essence we have recast such specialized major industries as water resources and land development, machine building for livestock breeding and fodder production, rural construction, and the mixed fodder and microbiological industry. Large-scale development has been achieved by tractor and agricultural machine building, production of mineral fertilizers, and the processing industry. And all of this comprises a growing industrial complex geared to provide for the steady advance of agricultural production.

In accordance with the CC CPSU decree on "Further development of the specialization and concentration of agricultural production on the basis of intersectorial cooperation and agroindustrial integration (May 1976)," a great deal of work is in progress in the country for the establishment of interorganizational enterprises and agricultural production associations as well as agroindustrial enterprises and associations.

The processes of interorganizational cooperation and agroindustrial integration now encompass all the principal zones and Union republics. According to the TsSU [Central Statistical Administration] USSR, by the beginning of 1979 the total number of interorganizational enterprises, organizations and associations came to 8,606 units. Participating in them are nearly all the kolkhozes, more than one-half the sovkhozes, and other state and cooperative enterprises and organizations. In the period from 1965 to 1977 the fixed capital of the interorganizational enterprises and organizations increased from 745 million to 11.7 billion rubles or a 15.7-fold rise.

The conversion of socialist agricultural production to a modern industrial basis is the principal direction of the further development of agriculture and the practical implementation of the ideas underlying the Leninist cooperative plan in the context of a developed socialism. The decisions of the July (1978) plenum of CC CPSU are opening up new vistas for agriculture. The plenum marks a new stage in implementation of the party's agrarian policy and in transformation of agriculture into a highly developed sector of our socialist economic system.

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## ANOTHER RAYON AGRO-INDUSTRIAL ASSOCIATION IN ESTONIA

Tallin SOVETSKAYA ESTONIYA in Russian 7 Jun 79 p 1

[Article: "Familiarity With the 'Vil'yandi Experiment'"]

[Text] During the years the Vil'yandi agricultural association, the first in our country, has been in operation, the indicators of all farms of the rayon have improved. As compared to the beginning of the last five-year plan, the gross output of meat increased by 28 percent, milk--by 21 percent, and grain--by 38 percent.

Farmers of the republics and oblasts are greatly interested in the work experience of the agricultural association. The "Vil'yandi Experiment" lay the basis for further deepening of specialization and concentration of agricultural production in our republic. An agro-industrial association has been in operation in Pyarnuskiy rayon since the beginning of the year.

On 5 July in Vil'yandi there was a traveling session of the bureau of the economic division of VASKhNIL. Participating in it were such eminent economic scientists of the country as the division's academician-secretary, A. Nikonov; VASKhNIL academicians N. Aleksandrov and G. Loza; and corresponding member of the USSR Academy of Sciences, V. Miloserdov. The chairman of the agricultural association's council, Yu. Rakhula, familiarized the guests with its activity. One of the initiators of the agricultural association, the first secretary of the Pyarnuskiy party raykom, V. Udam, gave a speech.

Participating in the work of the session were: a member of the bureau of the Central Committee of the Communist Party of Estonia, first deputy chairman of the Estonian SSR Council of Ministers, A. Ryuytel'; deputy chairman of the Estonian SSR Gosplan, V. Rozenberg; and first deputy minister of agriculture of the Estonian SSR, I. Aamisepp.

The participants visited the experimental hog raising combine of the support-demonstration Sovkhoz imeni Yu. Gagarin and the farms of Nuyaskiy Rayon.

On 6 July the economic scientists became familiar with the work of the Pyarnuskiy agro-industrial association.

## HARVEST IN PROGRESS IN KUBAN'

Moscow PRAVDA in Russian 23 Jun 79 p 1

[Article by V. Logvinov (Krasnodarskiy Kray): "Masters Set the Pace"]

[Excerpts] To obtain a maximum quantity of output from each hectare of arable land--such is the task which agricultural workers of the Kuban' have set for themselves. They are now engaged in the most responsible and decisive stage of their struggle for a large crop--harvest. The farmers have come to it well prepared. Thousands of combines and reapers have already gone out onto the fields. Machine operators, specialists and managers of farms, party committees and bureaus are doing everything possible so as not to allow the best harvest times to pass, to harvest everything that has been raised and to avoid losses of the crop.

The first secretary of the Krasnodarskiy party kraykom, S. P. Medunov, comments on the course of the harvest on the farms:

It is a busy time on the fields. The grain growers have begun mowing and threshing winter barley and peas. The spike and pulse crops have to be harvested from an area of about 2 million hectares, including 1,600 hectares planted in winter wheat.

Despite the difficult weather conditions, the majority of the farms have raised a fairly good harvest. This is the result of hard work on the part of all farmers. And especially in planting. Then a large amount of work was done to destroy weedy vegetation and utilize mineral fertilizers effectively.

The field workers also prepared well for the harvest. The harvesting was begun energetically and in an organized way by many kolkhozes and sovkhoses of Adygeyskaya Autonomous Oblast and Korenovskiy, Kushchevskiy, Leningradskiy, Timashevskiy, Ust'-Labinskiy, Bryukhovetskiy and other rayons. The farms have drawn up comprehensive plans for conducting the harvest. The technical equipment is to operate 24 hours a day.

More than 15,000 combines, 13,000 reapers, about 50,000 trucks and as many tractors will be used on the grainfields. All the technical equipment has been concentrated in 1,400 harvest-transport complexes and brigades.

This year the harvest began earlier than usual. This is why it is especially crucial to conduct it without losses and in short periods of time. In this connection, the initiative of the farmers of the Pobeda kolkhoz in Korenovskiy rayon deserves approval. They resolved to complete not only the threshing of grain crops, but also the entire complex of fieldwork, including plowing the fallow and planting after-harvest crops in 9 calendar days.

Now, raykoms and local party organizations are explaining the essence of the innovators' initiative to all farmers. Communists everywhere have led the competition for maximum utilization of the technical capabilities of the machines. And so far, these capacities are not being fully utilized everywhere. As an inspection showed, certain farms have not fully prepared the threshing floors, storehouses and grain cleaning aggregates. In some places, the detachments and teams have not been staffed with enough personnel for two-shift work. There are cases where the trucks allotted by the enterprises for shipping grain are poorly equipped. Measures are now being taken to eliminate these shortcomings.

One of the important elements in reducing the time periods and ensuring high quality of the harvest is control threshings. They have been extensively used in the kray and have become a good means of encouraging thriftiness and an effective form of struggling for good final results. The machine operators not only strive to gather the grain rapidly and without losses themselves, but they also supervise the work of others.

The increased technical supply and the mastery of the grain growers make it possible to lay a good basis for the future harvest. On an area of 700,000 hectares it will be necessary to plow and cultivate the fallow no later than a day after harvesting. More than 20 million tons of organic fertilizers have already been shipped to the fields. Fertility detachments are working everywhere. Enterprises of the kray's cities have sent 4,500 tractors and much other technical equipment for their assistance.

At the same time, they are tending the row crops. The first interrow cultivation of the planted areas has been completed. All the sugar beet plantations and considerable areas planted in corn have been top-dressed with liquid organic and mineral fertilizers.

Now the mass political work of the rural raykoms and local party organizations is concentrated on the fields. There will be 25,000 communists employed in the decisive areas of the harvest and 1,600 temporary party groups have been created.

In a word, the struggle for successful fulfillment of plans and socialist commitments for the sale of grain and other products to the state have become the affair of each worker in the Kuban'.

## KUBAN' ENGAGED IN HARVEST-79

Moscow IZVESTIYA in Russian 4 Jul 79 p 1

[Article by A. Dergachev (Krasnodarskiy Kray)]

[Excerpts] One can see something like this on the Kuban' steppe only several days in the year. A warm summer rain has started and the thin crescent of the newborn moon hangs in the sky. And throughout the limitless expanse from the main Caucasian range to the Black and Azov Seas wandering lights float over the steppe. And when you come closer to them you see that they are combines moving through well distinguished clouds of dust. From time to time lights sparkle over them—a signal for the truck drivers: "The hopper is full!"

Fires on the steppe...they also appear on the roads—narrow village roads and broad highways—along which wheeled tractors with carts scurry, bringing chaff and crushed straw to the farms, and along which carefully loaded trucks run.

The Kuban' grain has begun to leave the sun-parched fields. A well arranged harvest conveyor has gone into operation and all its teams are now the main ones. It is no wonder that from ancient times the people have called this season "strada" [hard work]. It means rapid and hard work for everyone. Especially this year's harvest when the heat has affected the spikes so that it does not hold the grain well.

Harvest-79 has imposed severe demands. It is not only necessary to harvest the grain down to the last kernel, but also to gather up each kilogram of chaff and straw because they also are food for animal husbandry. And another thing: not later than 2 or 3 days after the stubble has been removed from the fields, it is necessary to plow the fallow. Because fallow is also grain, only future grain. Wheat will be planted in the autumn here.

...The Kuban' is gathering grain and the crop is fairly large if one takes into account this year's conditions. And today one can say that an advanced science of farming so typical of Kuban' masters counteracted the drought. Such important agricultural measures as the law of equality of planting and harvesting areas, control threshings on each field and many, many other things have become the daily norm for everybody.

The hum of motors on the Kuban' steppes does not die down day or night. The grain is moving. And from the first hour of the harvest, in a unified technological sequence, the farmers have been laying a firm basis for the future crop.



## SUMMER HEAT AFFECTS KUBAN' GRAIN CROP HARVEST

Moscow IZVESTIYA in Russian 13 Jun 79 p 1

[Article by A. Dergachev (Krasnodar)]

[Excerpts] At sunset the herons fly from the shores where they live into the depths of the Kuban' mudflats. They fly away because the area of the estuaries has dried out to such a degree that trucks can go along their hummocky bottoms without difficulty. And a whitish haze of heat moves over the scorched steppe during the day. Until recently, the farmers had hoped for the golden May rains which are especially valuable on the graingrower's calendar. They waited for them in June as well when the spikes of winter wheat are filling out on 1.7 million hectares. But, as usual, the steppe swelters....

The barley has already turned white and bright spots of it are sharply outlined against the overall green background of the field. In the southern rayons of the kray they began to harvest these areas earlier than usual.

And the harvest in general is coming early. And therefore the requirements of the final kray inspection for the readiness of harvest and transportation equipment have become even more strict. According to the established tradition, rayon commissions make the examination of technical equipment.

On the kolkhozes and sovkhoses of the kray the working schedules for the forthcoming grain harvest are being revised not only with adjustments for this year's early harvest, but also with future extensive preparation for creating a basis for future harvests.

While even a couple of years ago the threshing of grain in 7-9 calendar days was considered difficult, now it has become a realistic task for the majority of farms of the Kuban'. This is crucially necessary because of the need to raise stably large crops under any weather conditions.

...It is hot in the Kuban'. Soon it will be harvest time.

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## GRASS HARVEST ON SINYAVSKAYA FLOOD PLAIN

Moscow PRAVDA in Russian 30 Jun 79 p 1

[Article by M. Kryukov (Rostovskaya Oblast): "Flood Plain Serves Farm"]

[Text] The Sinyavskaya flood plain...thousands of hectares of reeds and various kinds of wild grasses on the Don delta. Now is a busy time--the "green harvest" is in progress. The combines are piling up a wall of reeds. The mower-grinders will soon be in operation. An entire plant for producing grassmeal and granules is in operation on the flood plain. During 24 hours the enterprise produces more than 60 tons of granules.

"Several years ago a large part of the Sinyavskaya flood plain belonged to the Zavety Il'icha kolkhoz," says first secretary of the Neklinovskiy CPSU raykom, V. Denisov. "Young animals were kept here in the spring and summer. Feed was shipped to the farms by a ferryboat. You cannot ship much. In a word, the grasses were really not used. Then, they decided to create an inter-farm association for assimilating the flood plains. Using funds of the shareholding farms, they constructed bridges across the streams and purchased technical equipment. The former secretary of the kolkhoz party committee, V. Ishchenko, was named chief of the association.

This year the association's collective has taken on increased commitments. They have resolved to gather no less than 70,000 tons of green mass from the flood plain, to prepare 6,000 tons of granules, and to store up 5,000-5,500 tons of haylage and 2,000 tons of hay. Shock work in feed procurement is being done by the brigade of I. Parkhomenko and high productivity is being achieved by the senior operators of the installations, A. Voskoboynikov and N. Yashchenko.

Recently, on the initiative of the party obkom, rayon managers visited here. They became familiar with the experiment. They were again convinced that when approached zealously the flood plains can become an additional source of feeds.

The oblast has more than 400,000 hectares of irrigated land. Special hopes are placed in them. The leading farms are counting on conducting three-four mowings of alfalfa on each irrigated section. Repeated and after-harvest plantings are being expanded on irrigated land.

Irrigated lands are being utilized efficiently on the Kolkhoz imeni Lenin in Sal'skiy rayon. The chairman of the board, B. Kuchma, frequently begins his working day with an inspection of the irrigated sections.

"But what else can we do," he says. "Irrigated land--and we have about 1,000 hectares of it--is the main supplier of green fodder."

Many farms in Aksayskiy, Semikarakorskiy, Tsimlyanskiy and Peschanokopskiy rayons receive a good return from irrigated lands. But they are not highly valued everywhere. On a number of farms of Martynovskiy, Kurybyshevskiy, Konstantinovskiy and other rayons these areas are irrigated unsystematically and the yields obtained from them do not exceed the yields from nonirrigated lands. Specialists have calculated that if 40 quintals of grain can be taken from one irrigated hectare, in 1978 they failed to receive about 120,000 tons of grain from unutilized irrigated land in the oblast.

Unfortunately, the shortcomings of past years are being repeated. For various reasons, almost one-fifth of the Fregats are not being used on the farms. Their assembly is being delayed, breakdowns are frequent, and there are not enough sprinklers for organizing two- and three-shift work. Thus in Bagayevskiy rayon when irrigation time arrived more than one-third of the sprinkling machines were not operating. They operate intermittently on the Stepnoy sovkhos in Proletarskiy rayon.

A large part of the responsibility for efficient utilization of technical equipment lies with specialists and machine operators. But this responsibility for organizing irrigations has not been felt, for example, by the managers of the Rossiya kolkhoz in Neklinovskiy rayon. There are about 1,000 hectares of irrigated land here, but only 5 of their 17 sprinkling installations were in operation. And even these operated with interruptions. The irrigation network on an area of about 200 hectares was in such a neglected condition that it was practically unusable.

Such an attitude toward irrigated lands is intolerable. Especially now when it is dry on the steppes. Party committees must exercise special control over each hectare of irrigated land in order to raise and harvest a good crop from them.

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## CAUSES OF GRAIN LOSSES

Moscow ZERNOVOYE KHOZYAYSTVO in Russian No 6, Jun 79 p 25

[Article by Candidate of Agricultural Sciences A. N. Pugachev of the Central Machine Testing Station, Candidate of Technical Sciences G. S. Demin, and G. T. Kravtsov of the All-Union Correspondence Institute of Food Industry]

[Text] The November (1978) CPSU Central Committee Plenum paid a great deal of attention to the problem of losses of agricultural produce. Comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the USSR Supreme Soviet Presidium, pointed out in his speech that "this is not just an economic question, but also one of great political importance...."

There are various kinds of losses in grain production. However, agricultural specialists sometimes forget, in paying particular attention to eliminating losses of grain in the field, that even in hopper grain there is a potential for losses in the form of crushing and excess moisture.

Crushed grain remains at the farm, but not as food; it is used as forage and thus loses an average of two-thirds of its initial value. These are direct losses of grain, easily recorded and estimated in both physical and monetary terms.

There are also indirect losses resulting from the presence of crushed grain in lots sent the state and from excess moisture; they are almost impossible to record directly and are a great threat to grain storage. All agricultural specialists and all workers in procurement organizations and at grain receiving centers should pay particular attention to these kinds of losses.

As is known, excess moisture and mechanical grain damage promote intensified respiration, the rapid development of microorganisms and fungi, sites for spontaneous combustion, and that leads to a sharp reduction in the stability of the entire lot during storage.

In order to determine the technological process for preparing grain, it is very important to know at that point the amount of moisture and crushing in the lots, especially under nonchernozem zone conditions, with their extremely instable harvest weather. In 1975-1977, we studied 1,500 lots of grain sold

the state by farms of Moscow, Tul'skaya and Orlovskaya oblasts in terms of these two indicators.

Analysis of the data bears out the fact that quite a large amount of crushed grain (0.8 to 2.9 percent) is arriving at grain receiving centers here and that the product has a high moisture content (18.0 to 22.1 percent), in spite of preliminary threshing. A significant portion (29 to 72 percent) of the total grain impurities (2.5 to 4.1 percent) is also accounted for by damaged grain.

In various rayons of Moscow Oblast, grain lots differ appreciably in terms of basic technological indicators. Thus, the difference reaches 3.3 percent in terms of moisture content, 0.9 percent in terms of crushed grain, and 3.3 percent in terms of grain impurities. Crushed grain accounts for 33-58 percent of the grain impurities, which fluctuate from 2.4 to 5.7 percent. This indicates that even within a single oblast, natural-climatic, agrotechnical and economic conditions have a great effect on the quality of lots of grain being sold the state.

Preliminary hopper grain cleaning on the threshing floors permits a very sharp reduction in crushed grain content. There is a real opportunity for reducing that content to 0.5 percent or less, which is evident from our analysis of the method of grouping lots arriving from farms of Moscow Oblast (Table, average data for 1975-1977). In 1976, some 23 percent of the lots checked contained 0.5 percent or less crushed grain. Whereas the wheat gathered from the fields contained an average of 4.8 percent crushed grain, after preliminary cleaning that level was 1.5 percent. Given careful selection of the procedure and observance of efficient hopper grain processing technology, the crushed grain content can be reduced to minimal values.

crushed grain (in percent)	number of lots with crushed grain contents of the indicated percentages	
	in the hopper of a grain harvesting combine	after preprocessing
0.5 or less	0.7	14.9
0.6 to 1	2.0	29.5
1.1 to 2	10.0	36.3
2.1 to 3	20.4	12.1
3.1 to 4	14.4	4.0
4.1 to 5	17.1	1.6
5.1 to 6	5.2	0.9
6.1 or more	30.2	0.7

It must be noted that farms often limit themselves to just cleaning the grain, without drying it. This means the harvest moisture content remains practically unchanged up until storage. Many years of experience have shown that if this level exceeds a critical value, 14-15 percent for a majority of



grains, the grain is practically unsuitable for storage. When the critical moisture content is exceeded by 2-3 percent, the respiration intensiveness increases 10- to 20-fold, with more carbon dioxide, water and heat given off and higher temperatures in the bulk. This in turn causes the rapid development of microorganisms, including those most dangerous to grain storage -- molds.

Based on average statistical grain moisture content values and according to data from those same nonchernozem zone oblasts and the humidity of the air during the harvest period (15-20 percent), the conclusion can be drawn that harvested grain requires immediate processing aimed at lowering moisture content, and about 40 percent of the lots, on average, must be processed for 1-3 days. As analysis has shown, farms of Moscow Oblast release to the grain receiving centers each year only 20 percent of their lots as dried grain (or grain of average dryness).

There is an appreciable inverse relationship between moisture content and the amount of crushed grain in the loss. Thus, at a moisture content of up to 17.5 percent, the lots contain 1.7-1.8 percent crushed grain; at 17.6 to 27.5 percent -- 1.2 to 1.4 percent, and over 27.6 percent -- only one percent. This pattern permits the practical conclusion that the drier the grain is, the more attentive one must be to working it based on the criterion of separating out the crushed grain.

So, in spite of preprocessing, hopper grain on nonchernozem zone farms arrives at the granaries unprepared for long storage and in need of further cleaning, drying and sorting.

Reducing grain crushing during combine threshing is important in eliminating one of the direct sources of grain losses. But it is no less important to remove crushed grain from lots to be put into long storage, in order to eliminate one of the potential sources of indirect losses.

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## CONCERNS WITH MEADOWS AND PASTURES IN KEMEROVSKAYA OBLAST

Moscow IZVESTIYA in Russian 13 Jun 79 p 2

[Article by P. Voroshilov (Kemerovskaya Oblast): "The Generosity of the Green Meadow"]

[Text] Never before has so much feed been procured in Kemerovskaya Oblast as last summer. There were more haylage, grassmeal, silage and root crops in the ration. Solid reserve supplies were created. The success was no accident. It was earned by high agrotechnology for the cultivation of feed crops and well-thought-out organization of the work.

But here is what draws our attention: 96 percent of the feeds were taken from arable land last year. It was necessary to allot a good third of the 1.5 million hectares of plowed land for feed crops. And yet, a million hectares of natural meadows produced, figuratively speaking, only a wisp of hay for animal husbandry in the oblast, and it was far from the best. A selective inspection that was conducted during the winter showed that 8.2 percent of the hay that was procured was of the first class and 1.1 percent of the haylage. One-third of the hay, 77.4 percent of the haylage and more than 24 percent of the grassmeal were substandard, that is, they did not have the necessary nutritive properties. There are tons of grass, but no feeds. True, for some time the livestock grazed in the meadows but even then the meadows really performed the function of grazing areas. In order to obtain the planned kilograms of milk, all the farms fed the cows in the summer as well and again took rye and oats for "green fodder" from the arable land.

"And what do you want us to do?" the head agronomist of the feed production group of the oblast agricultural administration, V. Konashevich, asked me. "We have plowed the best lands. The meadows are on the slopes of mountains where technical equipment cannot be used, solonetz steppes and marshes where only sedge grows. And we receive the corresponding return."

The answer sounds reasonable. But it does not give one a feeling of what will happen in the future; it does not include a solution to the problem. The number of livestock in public animal husbandry will continue to grow. The number of privately owned cows is also increasing. This means that even

more feeds will be needed. Are we supposed to steal more haycutting lands from the plowed land? But this is not advantageous: grain mixed with straw produces about 17 quintals of feed units per hectare in Kemerovskaya Oblast while grasses produce only about half this much.

Quite recently Siberian grain growers considered their duties on the fields to be completely fulfilled if they managed to take care of the fall fallow in September and retain the moisture with one plowing in the spring. Now the picture is different. Each year the farms of the oblasts ship in up to 4 million tons of organic fertilizers and tens of thousands of tons (in active substance) of mineral fertilizers to the arable land. Crop rotations have been assimilated. All this, you will note, has become a rule, a law in farming.

Here nobody is bothered by the reasonable expenditures of labor and money because they are all recouped: it is necessary to restore the fertility of the field and to increase it. But the meadows are allowed to go their own way completely. Even in winter, at the request of the kolkhozes and sovkhoses, the rayispolkoms and oblispolkoms allot some of the land from the state supply and the state timber area for grazing and haying. This is a necessary thing which makes it possible to bring additional resources into circulation. But not a single word is said about the responsibilities that arise with this.

Subsequently, events develop this way. Say a fattening sovkhos takes over a section of lowland of a taiga river where the grass is higher and thicker, fences it off, makes paths to the drinking water and brings in the young animals. Two shepherds have to deal with a herd of 300 young animals.

The sovkhos is not worried about what will happen tomorrow. This pasture will be exhausted and abandoned and another will be found...from the point of view of sovkhos bookkeeping everything is well and good here: the expenditures are in kopecks and the income in rubles. But it is bad for the land.

The concentration of animal husbandry, as we know, involves more than advantages that are obvious to all. It also has less apparent aspects. The load on the meadows around dairy complexes has increased sharply. The pastures here are literally trampled down during the course of one summer. And in places where the farms specialize in hog raising, the unsupervised meadows are quickly covered with willows and other forest vegetation.

The Siberian meadows have long been worked with full return on efforts. Now they need help. True, crop hayfields and pastures are now being created at dairy complexes. The matter has been placed on a solid technical basis. The Meliovdstroy trust is capable of assimilating up to 8 million rubles' worth of capital investments a year. A shop for steel pipes has been constructed, which makes it possible to irrigate more than 11,000 hectares annually.

But still, these measures alone are not enough. Nothing good will come if some people restore what has been damaged by the sweat of their brows while others come along and damage what has been restored. Farm managers should be responsible for the condition of the meadows, like the "health" of the arable land, strictly in keeping with the requirements of the land code.

But this is what has been happening so far. The rules for the utilization of crop pastures prohibit driving cattle on them immediately after irrigation. It is necessary to wait until the sod dries out and becomes firm. But, as a rule, the cattle are sent to natural grazing lands early in the spring. There is nothing for a cow to eat yet; she is walking around but not eating. But during a day she tramples down two or three hundredths of a hectare. For centuries, grazing has been alternated with haying in Siberia. This rule is now being violated on certain farms. In places that have drinking water and a milking area has been constructed they graze year in and year out. As a result, the most productive grasses "leave" the meadow.

The situation is critical with seed grasses. It was necessary to create special seed sections on the farms. But alfalfa, clover and awnless brome grass are still on arable land. Single-crop systems are not indicated for meadows. The merit of a national meadow lies in that it is balanced by nature in the combination of various plants. Herein lies its strength. We are not speaking now about the seeds of many wild grasses. Hardly anyone would bother with them in intensive farming when the crops amount to tons. Well, can one ask for help from the young folk? During grazing times any pioneer camp procures enough seeds for more than one kolkhoz. It is possible to arrange seed sections on school farms. It is also possible, of course, to leave strips on the meadows so they can seed themselves. But this is not being done.

A consumer's attitude toward the meadow has worked its way firmly into our consciousness. One recalls the following incident. A kolkhoz chairman, a worthy man, well known in the oblast, when showing me a large meadow, said:

"Here grows a full array of grasses which at one time made Siberian butter famous."

And a week later a herd was grazing on the same meadow and the chairman, shrugging his shoulders, offered the justification:

"Milk has already fallen by the wayside, you understand. It is still too early to mow the perennial grasses because the yield will decrease."

Say that this time the chairman managed to find a solution. But on the whole during the past 10 years the procurements of hay on natural meadows have decreased by almost half in the oblast.

But still, each year the Kemerovskaya meadow receives about 780,000 head of cattle, 124,000 sheep and many thousands of horses for summer feeding. With such a large load, one simply cannot count on its natural restoration. Under the conditions of intensive development of animal husbandry, it is necessary to have new, scientifically substantiated recommendations for the utilization of meadows.

The farms are making some attempts in this area. When there is a good rain all one has to do is to apply one or two quintals of nitrogen fertilizer per

hectare for the pasture to come alive before one's eyes and its productivity triples. But the problem is that this kind of top dressing is not mandatory for anyone and it is not even included in the plan.

Or take the technical equipment that is used for maintaining the meadows. It is always borrowed from the arable land. On the farm it is difficult to find even an ordinary meadow harrow for surface loosening of the sod, although the simple production of them could easily be renewed in the rural blacksmith shop. But as of now stubble plows with directly set disks are being used on the meadows. Of course, this is not the solution to the problem. Pastures and hayfields need their own light complex of machines and adapters. This is apparently not being considered seriously by designers and machine builders who supply technical equipment for animal husbandry and feed production.

Not everything has been completely thought out in planning work for cultivating meadows. Experience shows that the greatest return per ruble of capital investment is obtained with surface improvement. But land reclamation workers consider it more advantageous for themselves to clear the stumps from forest areas and drain marshes.

Unfortunately, the Siberian division of VASKhNIL still does not devote enough attention to natural meadows even though this problem is of immense significance for the entire extensive region and opens up new possibilities of increasing the productivity of animal husbandry and providing the developing industrial centers with locally produced food products. And the RSFSR Ministry of Agriculture could devote more effort to solving this problem. It is worthwhile, especially today when the decisions of the July and November (1978) plenums of the CPSU Central Committee require a large shift in attention toward animal husbandry on the part of all our ministries and departments and managers of kolkhozes and sovkhoses. And the foundation of animal husbandry is the feed base whose solidity in Siberia depends largely on how we utilize meadows and the millions of hectares of other natural lands.

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CSO: 1824



## PROGRESS IN FEED PROCUREMENTS FROM KUZBASS MEADOWS

Moscow TRUD in Russian 7 Jul 79 p 1

[Article (Kemerovo): "The Ipatovo Method on the Meadows"]

[Text] Dense grasses have grown up this year in the majority of rayons of Kemerovskaya Oblast. Each day the green harvest is developing more energetically and its rates are significantly higher than last year's.

There are now 1,700 mechanized complexes employed in mowing. They include about 400,000 mowers, hundreds of rakes, pilers and other equipment, as well as more than 2,300 silage combines and 200 aggregates for preparing vitamin meal, granules and brickettes.

The alfalfa and brome grass stand in a high, dense wall on the Novostroyka sovkhov. They are gathering 25-30 quintals of excellent hay from each hectare here.

"We will have to prepare 1,200 tons of hay," says a machine operator, V. Maksimov. "In the general meeting we resolved that in order to obtain first-class feed it is necessary to reduce to a minimum the time periods between mowing the grasses and picking them up. Ten days have been allotted for this work."

The rates of the harvest are high on the meadows of the Barachatskiy sovkhov and the Kolkhoz imeni XXI parts"yezd, whose collectives have resolved to create a supply of feeds that will last a year and a half. The aggregates for producing granules and brickettes are in operation 24 hours a day here and effective competition has been developed for the highest daily productivity in the procurement of hay and haylage. The comprehensive brigade of the Kolkhoz imeni XXI parts"yezd has resolved to conduct no less than three mowings from irrigated meadows and to obtain an overall total of 400 quintals of green mass from each hectare.

Many farms of the oblast have followed the example of the initiators. They are striving to gather the first grass crop more rapidly, to top dress the aftergrowth and to obtain fully valuable grass from the next mowing.

Kuzbass workers are obligated to store up for the forthcoming wintering of livestock 408,000 tons of hay, 583,000 tons of haylage, 2,310,000 tons of silage, and 100,000 tons of vitamin meal. It is intended to fulfill most of the earmarked program for the procurement of high-quality feeds by July.

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## GREATER EFFORTS FOR INCREASING FEED HARVESTS IN IVANOVSKAYA OBLAST

Moscow PRAVDA in Russian 8 Jul 79 p 1

[Article by Z. Bystrova (Ivanovskaya Oblast): "A Rainbow Over the Field"]

[Text] Thousands of residents of cities and villages of Ivanovskaya Oblast, in response to an appeal from party committees, are working energetically with the mowers and rakes. Forest meadows, marshes, ditches along roads and other unsuitable land are not being left without attention. In a word, much is being done in order to create supplies of forage. But still, they are increasing slowly. Why?

In the words of the chief of the agricultural division of the party obkom, N. Bazhenov, during the past 5 years the number of head of livestock in the oblast has increased approximately 1.5-fold. But their supply of forage has remained extremely low. Last year, a large quantity of straw for feed had to be shipped in from other oblasts.

Yet, far from all reserves for feed production have been put to work. Irrigated land is being poorly utilized and there are now more than 24,000 hectares of it here. Of the 199 irrigation systems, about 150 are in operation and of the 383 sprinkling installations--no more than 270 are working. Slipshod work on the part of designers and builders and the inability to operate facilities that are already prepared are causes of inefficiency. Unfortunately, such cases are still not being properly evaluated here.

Pestyakovskiy rayon is instructive in this respect. Only 4 of its 11 systems are in operation. Commissions come, they find various mistakes and draw up documents, but the situation does not change. Moreover, the blunders are repeated. This spring the rayon was allotted four powerful Peregats. And what happened? The highly productive machines remained idle. Why? The irrigation system in which they were to operate was not released on time: the completion of the work was postponed from the second quarter to the third.

Similarly, the Ivanovomelioratsiya association (chief, V. Romanchuk) is not coordinating its plans with the needs of the farmers. The time periods for the construction of land reclamation systems have been doubled on the Dobritsa kolkhoz in Lukhskiy rayon, which was to have become a supplier of forage for

an interfarm fattening installation that accommodates 1,700 head of cattle. Here it was planned to irrigate more than 600 hectares. So far, only four of the eight Fregats are in operation: they are hoping for rain. Need one say that the best time periods for irrigation have passed here?

There are many serious blunders and a lack of organization on other farms. From time to time during the day, one still sees a beneficial wing of artificial rain spreading over the planted areas. But by evening life on these "oases" dies down. The early morning and evening hours which are most favorable for irrigation are passed by almost everywhere: there are not enough sprinklers on the farms for 24-hour operation. Two Volzhankas operate on an area of 140 hectares of planted grasses on the Timiryazevskiy sovkhos in Lukhskiy rayon. They are tended by the machine operators B. Kozlov and S. Kryukov along with his schoolboy son.

"We should have a second shift," the sprinkler operators expressed their desire. "Then we could harvest much more feed from this field. But so far the yield is not great...."

But still, there are excellent examples in the oblast. Fregats stand their watch beginning early in the spring on the Kolkhoz imeni Chapayev in Sokol'skiy rayon. They operate 24 hours a day here. And the return is obvious: each irrigated hectare of planted grasses produces eight tons of feed units.

A total of 10 percent of the land in Lukhskiy rayon is irrigated. Even with irrigation on one shift it provides the farms with up to 30 percent of their forage. And if there were a full load, and on all 24,000 hectares? But the party committees and economic agencies are not drawing the proper conclusions and correct appeals are not reinforced with practical organizational work.

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CSO: 1824

## LIVESTOCK FEED GATHERING DIFFICULTIES IN LATVIA AND BELORUSSIA

[Editorial Report] Items appearing in Belorussian and Latvian newspapers this summer give the impression of continuing and deepening concern on the part of officials in those areas for the livestock feed situation there. The Belorussian newspapers have carried almost daily reports of local examples of special measures in feed gathering, i.e. mowing grass from roadsides and wastelands, cutting reeds from ponds and ditches, grinding up twigs, gathering food scraps. But prominent among these local reports are three republic level pieces.

The first is a rather long Belorussian Central Committee resolution "On the unsatisfactory fulfillment of the tasks in feed procurement". [Minsk SEL'SKAYA GAZETA 30 June 79 pp 1-3]. This was followed about a month later by Belorussian Central Committee and Council of Ministers resolution "On additional measures for the fuller utilization of all possible resources for the maximum production and procurement of feed in the summer-fall period". [Minsk SEL'SKAYA GAZETA 1 Aug 79 p 1]. Finally, a shorter article appeared a few days later with some admonitions and instructions for implementing the previous resolution. [Minsk SEL'SKAYA GAZETA 4 Aug 79 p 2].

Newspapers in Latvia show concern similar to that shown in Belorussia. First there is a declaration from the Latvian Central Committee to all primary kolkhoz and sovkhos organizations and to all who will participate in feed procurement in 1979. The declaration makes July a shock month for feed procurement. This is primarily an admonition with only brief actual reference to the unfavorable feed situation developing. [Riga SOVETSKAYA LATVIYA 4 Jul 79 p 1]. This is followed by a longer, more explicit Latvian Central Committee resolution "On the unsatisfactory course of feed procurement in certain kolkhozes, sovkhoses and rayons in the republic". [Riga SOVETSKAYA LATVIYA 8 July 79 p 1]. Another Latvian Central Committee piece appears early in August at the close of the shock month. The report states that the work done during the shock month helped augment feed supplies but admonishes workers on several points including continuing the mowing of grasses from waste lands, and the gathering of food scraps and plant tops. [Riga SOVETSKAYA LATVIYA 5 Aug 79 p 1].

CSO: 1824



## FEED PRODUCTION INTENSIFIED IN GOR'KOVSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 7 Jul 79 p 2

[Article by V. Semenov, ispolkom chairman, Gor'kovskaya Oblast Soviet of People's Deputies: "Feed Production -- Branch Development"]

[Text] In recent years, feed production in Gor'kovskaya Oblast has become an increasingly stable and self-reliant branch. Its material-technical base has been strengthened, the machine-operator detachment has been considerably reinforced, areas planted to corn and root crops have been expanded, and upwards of half the area sown to grain crops is in high-yield forage crops. Average annual feed production during the first three years of the current five-year plan has increased by more than 20 percent as compared with the corresponding period in the Ninth.

However, the feed procurement branch is still not keeping up with growth in herd size, which retards improvement in livestock productivity. The primary way of increasing feed production and that on which the party obkom and oblispolkom are focusing the efforts of kolkhoses and sovkholes is to increase soil fertility and make effective use of each hectare. Take, for example, the production of succulent feed, still in short supply. In a number of rayons only 120-130 quintals of bulk corn vegetation was gathered per hectare heretofore, while we need to obtain at least 180 quintals per hectare and 140 q/ha of other silage crops (a task already set us).

The feasibility of these obligations is testified to by the experience of Chkalovskiy and Kstovskiy rayons, where extensive use is made of advanced agricultural techniques to grow high corn harvests each year. Thus, corn plantings on farms of Chkalovskiy Rayon are made with hybridized seed and on schedules close to those for early grain crops. Over the past three years, rayon farms have harvested an average of 312 quintals of corn per hectare, and 374 q/ha last year, a difficult one.

Growing this important feed crop using new technology has enabled the rayon to increase its gross bulk vegetation production six-fold and to meet in full the farms' succulent feed requirements these past four years. This had an immediate impact on milk yields and weight gain. The farms meet plans for sales of stockraising output to the state each year.

We are trying to introduce this experience everywhere. The area sown to corn in the oblast has been increased by more than 5,000 ha, corn is being sown at optimum times, sprouting has been rather good, and the plantings are now being cared for. The sowing plan has also been met fully for other fodder crops.

Some 254,000 ha in the oblast are planted to hay and 535,000 ha to pasture. These are the basic sources of the cheapest and most full-valued fodder. Farms of Urenskiy, Bogorodskiy, Arzamasckiy and several other rayons have skillfully improved these lands by top-dressing the grass with mineral fertilizers, undersowing thin sectors, drawing off snow melt, and so forth. As a result, natural grass yields are increasing.

Many kolkhozes and sovkhoses are establishing permanent cultivated pastures. There are 27,000 ha in the oblast, including 13,500 which are irrigated. In Lukoyanovskiy, Boriskiy and several other rayons using such areas skillfully, 250-300 quintals of bulk vegetation is being obtained from each hectare.

This year the plan is to put another 4,700 ha of irrigated meadow into production and to fundamentally improve natural land on 25,000 ha and topsoil on 100,000 ha. This will permit significant improvement in their productivity and obtaining at least 250 quintals of bulk vegetation per irrigated hay and pasture hectare oblast-wide.

Fodder production development is being retarded by the shortage of perennial grass seed. In order to improve this situation, we have defined a network of grass seed-growing farms and are trying to specialize them. At the same time, we demand that each farm try to meet its own grass seed requirements itself.

For the oblast as a whole, only 900 grams of protein per fodder unit is being obtained. Given that level of protein in feed rations, the farms are failing to obtain a large amount of livestock output and feed expenditures are considerable. At the same time, the oblast does have kolkhozes and sovkhoses with no protein problem. Thus, the Kolkhoz imeni I. I. Razumovskiy (Chkalovskiy Rayon) has, with the active assistance of scientists of the Moscow Agricultural Academy imeni K. A. Timiryazev, introduced beans and sunflowers into feed crop rotations. The former yield up to 5-7 tons of protein meal per hectare, and the sunflower seeds are made into "oil-cake" granules containing up to 14 percent fat and 11 percent protein. This good example of cooperation between science and production is being disseminated into other rayons and is bearing positive results.

High alfalfa yields are obtained year after year on a number of farms of Bol'shemurashkinskiy Rayon, especially on the Kolkhoz imeni Lenin.

In order to improve silage quality, more than half the bulk vegetation is now laid in with chemical preservatives. There are not enough storage facilities, drying units or other material-technical means to prepare good feed. In this connection, the CPSU obkom and the oblast Soviet of People's

Deputies ispolkom have decided to enlist oblast industrial enterprises in building feed-production facilities. They already plan to build another 550,000 cubic meters of haylage and silage capacities this year, in addition of the 1.5 million tons of capacities now available. And in the years ahead, all silage and haylage will be stored only in fully lined facilities.

Modern field laboratories are needed to more effectively determine feed quantities and more strictly monitor the technology of their production. As of now, only one-fifth of the kolkhozes and sovkhoses are provided with them, and field laboratories must be available on each farm. We expect help from the RSPSR Ministry of Agriculture in solving this problem.

A solid fodder base is created most successfully and the land used most effectively on those farms where specialized brigades and links manned by experienced personnel and provided with the necessary equipment are concerned with feed production. The party obkom and oblispolkom view attaching a specialized, branch character to fodder production as the primary direction in further developing it. Over the past few years we have been working persistently to organize mechanized feed-procurement brigades and links on each farm. Their numbers have increased from 122 in 1975 to 425 at present. Already, more than 70 percent of the area sown to fodder crops is assigned to them. The brigades are manned by full-time personnel, are provided with the necessary equipment and fertilizers, and are assigned the best land. The leaders of these collectives are, as a rule, agricultural specialists or the most experienced machine operators.

Transferring forage production to the specialized brigades and links has permitted the elimination of lack of personal responsibility in fodder production. Last year, they were assigned somewhat more than one-third of all the area sown to fodder crops, and these subdivisions obtained 45 percent of the haylage accumulated in the oblast, 54 percent of the silage, 60 percent of the grass meal, 57 percent of the fodder root crops, and 23 percent of the hay.

Specialized brigades obtained 20-30 quintals of root crops, perennial grass bulk and corn more per hectare than on average for the oblast; labor expenditures and labor prime cost for feed production were lowered. Particularly significant successes were achieved by the brigades led by V. I. Soldatov ("Niva" sovkhos), Hero of Socialist Labor I. P. Boyarskov ("Zhdanovskiy" sovkhos), V. I. Tsvetkov ("Mir" kolkhoz in Koverninskiy Rayon) and N. G. Mordashov (Kolkhoz imeni I. I. Razumovskiy in Chkalovskiy Rayon). These collectives annually obtain 40-50 quintals of fodder units per hectare, and feed production is 3,500 to 4,000 or more quintals of fodder units per machine operator.

In view of the results they have achieved, we are extensively propagandizing and introducing the experience of these brigades. To this end, schools of advanced experience have been created at the best farms. Such schools also are in operation at "Zaprodnovskiy" sovkhos, home of the brigade of M. I. Gogin, Hero of Socialist Labor and winner of the USSR State Prize. There is

indeed something worth learning here. All brigade members are broadly specialized machine operators well-versed in the principles of agricultural technology.

The initiative of leaders of the leading fodder-procurement brigades, who have called for a struggle to obtain at least 25-30 quintals of fodder units per hectare this year and to ensure the output of 1,700 to 1,800 quintals of fodder units by each machine operator, has received broad support. Machine operators are fully resolved to meet high obligations and procure 810,000 tons of hay, nearly two million tons of silage and a million tons of haylage, as well as 60,000 tons of grass meal and vitamin granules.

We understand that the creation of a solid fodder base for intensive stock-raising development is of statewide importance and will demand that each leader and specialist, each agricultural worker, approach it with a good measure of responsibility.

The transfer of feed preparation to specialized brigades is also appropriate. Where this is done, machine operators are employed the year around, which makes it possible to create a permanent, rather than seasonal, collective, which is very important. The members of feed-procurement brigades, who are responsible not only for forage production but also for providing livestock with full-value rations, will be paid for output, the logical completion of their work to improve feed quality. This form of production organization should, we think, interest machine operators, since they will see the results of their work not just in amounts of hay, silage, root crops and haylage laid in, but also in an increase in the production of meat, milk and other stockraising output.

In accordance with the resolutions of the July (1978) CPSU Central Committee Plenum, the development of feed production has now become the most important and most immediate task of the oblast. Providing livestock with feed is viewed as one of the primary criteria in evaluating the work of farms and rayons. The question has been posed in the form of struggling for feed as for grain, and there can be no other approach. We think that given this attitude towards solving the problem, the oblast will be able not only to meet the socialist obligations it has assumed of selling the state 827,000 tons of milk and 209,000 tons of meat, but also of making up the shortfall of the first three years of the current five-year plan and the lag in sales of stockraising output to the state.

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CSO: 1824



## NEGLIGENCE CAUSES LIVESTOCK LOSSES IN ESTONIA

Tallin SOVETSKAYA ESTONIYA in Russian 1 Jun 79 p 3

[Article by E. Lang, chief of the investigative administration of the Estonian SSR Procurator's Office: "Negligence of Duty"]

[Text] Unfortunately, we have become accustomed to the idea that we are rich. It is even worse that we forget about the fact that wealth begins with thriftiness and with respect to socialist property we sometimes allow extravagance, carelessness and negligence.

In this article, I have set the goal of giving examples of an irresponsible attitude toward this matter in various spheres of our activity. For purposes of clarity, I have decided to give these facts regarding agriculture--one of the most important parts of our economy.

Strict observance of state discipline in the area of agriculture is especially crucial for our republic, taking into account the extremely unfavorable conditions of the past summer, autumn and winter. Hence, agricultural workers, more than anybody else, must provide for efficient performance of each of their duties, thus preventing additional damage by the fault of the workers themselves.

An analysis of cases in which livestock died in the republic shows that incidents of a careless attitude toward the performance of their duties are far from rare, which, under certain circumstances, leads to large material loss. Certain cases from the practice of procurator agencies and the court tell of this eloquently.

On the evening of 27 January of this year, on the farm of the Esku division of the Adavere sovkhos in Yygevaskiy rayon, a group of dairy cattle suddenly fell ill. They had signs of such acute poisoning that their lives were in danger and the veterinaries who had been called were forced to make a decision to slaughter 51 cows.

Of course, the incident could not go unpunished. The procurator's office instigated a criminal suit. The investigation confirmed the initial assumption that the cause of the illness of the livestock was poisoning. It turned out that the syrup that had been brought to the kolkhoz as additional feed had been mixed



in a barrel which had previously been used to transport a toxic preparation to the field. The barrel which contained residuals of the chemical did not have a warning written on it and the workers who used it for the syrup thought it had been used for drinking water....

The investigation established that the party guilty of the crime was the senior agronomist, Il'mar Randmer, whose duty it was to observe the rules for storing chemicals used in crop growing. Without denying his guilt or disputing his responsibility, Il'mar Randmer stated that this chlorocholine chloride which is used for preventing lodging of grain crops, in his opinion, is not toxic. Yet if he had simply read the instructions about using the preparation he would have found out about the properties of chlorocholine chloride and the safety rules for handling it.

Only the person who should have performed his functions was held criminally responsible in this case. But moral responsibility lies on the shoulders of many others here. For example, on the farmworkers who requested that the containers for summer drinking water be used for the grain. They poured the syrup in them without making sure that they had been cleaned.

The head agronomist of the sovkhos, Yuri Smit, should have instructed his subordinates, including Il'mar Randmer, about chlorocholine chloride. But, as he explained, he himself did not know about the toxicity of the preparation. Incidentally, the idea that the preparation is harmless, as witnesses in court said, is fairly widespread among agricultural workers. The judicial expert evaluation, conducted at the instigation of the investigator with the participation of chemical specialists and veterinaries, produced the conclusion that chlorocholine chloride has a medium degree of toxicity. This fact shows that not everything is in order with respect to the issuance of information to the farms. And rayon agricultural administrations do not really devote attention to security measures in the application of toxic chemicals.

One is quite surprised when one comes up against cases like these. We talk a lot about the legal culture of management workers and their legal education. But does anyone of them really know about the existence of Article 162 of the Estonian SSR Criminal Code, "Negligence of Duty," which says: "An official's failure to fulfill or improper fulfillment of his duties as a result of an unconscientious or negligent attitude toward them which causes significant harm to state or public interests or the rights and interests of citizens that are protected by law, is punished by incarceration for a period of up to 3 years or corrective work for a period of up to 1 year or withdrawal of the right to hold certain positions or engage in certain activities for a period of up to 5 years."

Or take this example. On the Ridala sovkhos in Khaapsaluskiy rayon, the young animals are kept without being tied up. As a result, the stronger animals have crowded out the weak ones and sometimes trampled them to death. Thus in November-December of last year 10 head died. The investigation of this case again showed negligence of duty. The senior zootechnician responsible for

maintaining the young animals, Ants Klopp, ignored the instructions of the head zootechnician of the sovkhos and the senior zootechnician of the rayon agricultural administration concerning tying up the animals.

The guilty officials were convicted. But first, one must be concerned about the fact that on the farm itself the reasons for the death of livestock were explained and those that caused material damage were held responsible. We must recall that the Constitution makes managers of departments, enterprises and farms as well as all officials responsible for ensuring unwavering fulfillment of the laws by all of their subordinates.

But still we have many farms where the causes of the death of livestock are not analyzed and no attempts are even made to establish who was responsible for cases like this. The law stipulates that the damage from the death of livestock is to be fully reimbursed by the guilty parties. But in many places they make only partial reimbursement for the damage--in the amount of one-third or one-half their monthly earnings. Such cases show the inadequate role of the legal services of the farms and agricultural administrations in this matter.

A number of agricultural administrations do not engage in analytical or preventive work. For example, on the Tudulinna sovkhos in Kokhtla-Yarveskiy rayon 256 hogs and 47 head of cattle worth a sum of 9,980 rubles died in 1977. The figures are fairly impressive, but they were not noticed during a comprehensive inspection of the economic activity of the sovkhos.

On the Erra sovkhos in Kokhtla-Yarveskiy rayon 108 head of cattle, 437 hogs and 4 horses died during 1978. The damage amounted to 28,606 rubles. Despite the extremely alarming situation on the farm, the causes of the death of the livestock were not analyzed and documents testifying to the death of the animals were drawn up carelessly and not completely enough. Specific guilty parties were held responsible for only one small calf.

In many cases legal claims against parties who are to blame for the death of livestock are made only by procurators acting in the interests of the state. The law also makes it incumbent on procurators, if necessary, to make legal statements in the interests of the state. Thus, there is every reason to assert that in the future the activity of procurators' agencies should be stepped up even more in this area. Workers of procurators' offices should not fail to react to a single case where the guilty parties try to avoid legal responsibility.

But it would be incorrect to transform this practice into a system. After all, the Constitution gives the procurator the highest responsibility for ensuring the observance of law and order. This means that the procurator's primary task is to make sure that the corresponding supervisory agencies, managers and officials perform their duties. The procurator himself cannot and should not replace them. Consequently, along with intervention in the matter, the procurator should raise the question of the responsibility of those officials who are immediately responsible for dealing with the matter.

This is the only way to put an end to inefficiency and negligence of duty. To fight persistently for strengthening of labor and state discipline and to increase the responsibility for the matters entrusted to various people and for economy and a thrifty attitude toward socialist property--these are the goals toward which all of us are directed by the decree of the CPSU Central Committee "On Further Improvement in Ideological and Political-Educational Work."

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CSO: 1824

## ESTONIAN DECREE ON DEVELOPING HOG RAISING

Tallin SOVETSKAYA ESTONIYA in Russian 30 May 79 p 1

[Article: "In the Central Committee of the Communist Party of Estonia and the Estonian SSR Council of Ministers"]

[Text] The Central Committee of the Communist Party of Estonia and the Estonian SSR Council of Ministers have adopted a decree concerning measures for the development of hog raising in 1979-1980 and under the 11th Five-Year Plan.

The decree notes that during the years of the Ninth and 10th Five-Year Plans the republic has done a certain amount of work for developing hog raising, primarily through intrafarm concentration and specialization and also on the basis of interfarm cooperation in production. Large complexes have been constructed for producing pork. In a number of rayons simple and inexpensive premises are used for housing hogs. There has been a considerable reduction in expenditures of feed per kilogram of weight gain and labor expenditures on pork production.

As a result, the production of pork on the kolkhozes and sovkhoses has increased (in live weight) from 60,600 tons in 1970 to 105,000 tons in 1978.

The Central Committee of the Communist Party of Estonia and the Estonian SSR Council of Ministers noted that, in addition to what has been achieved in the development of hog raising and the supply of pork to the population, there are also a number of shortcomings. We have not developed a comprehensive plan for intensification, specialization and concentration of hog raising and large reproduction farms are not being created. The existing hog raising production areas are not being utilized very effectively, the level of pork production is lower than that envisioned by the plan, and the maintenance and feeding of hogs is unsatisfactorily organized, as a result of which the average daily weight gain of the hogs is low. For a number of years we have not devoted the proper amount of attention to the construction of sties and certain farms have not completed the construction of hog farms and complexes with full turnover of the herd. Rayon inspection teams for procurements and quality of agricultural products do not devote enough attention to questions of improving the organization of procurements of animal husbandry products from the population.

The Central Committee of the Communist Party of Estonia and the republic government earmarked among the most important tasks of all party, soviet and agricultural agencies the comprehensive development of hog raising for fuller satisfaction of the population's need for meat.

By increasing the number of head of hogs, increasing the average daily weight gain of hogs on fattening to at least 500 grams on all farms and increasing the sales weight of hogs to no less than 105-110 kilograms it is necessary for kolkhozes, sovkhoses and other farms to increase the sales of pork to the state to 125,000 tons (in live weight) by 1980.

The Estonian SSR Ministry of Agriculture has been instructed to provide for the raising of hogs on all farms and to earmark breeding farms with a full production cycle for raising breeding hogs and selling them to other farms and selling meat to the state. It is also to earmark specialized kolkhoz, sovkhos and interestablishment reproduction farms for producing young hogs and selling them to farms that specialize in fattening hogs; specialized fattening farms; and large hog-raising complexes with a full production cycle. In the mixed feed shops the ministry is to provide for increased production of mixed feed for hogs, enriching the grain with grassmeal, mineral substances, protein and vitamin supplements and also fishmeal and nutritive yeasts. In addition to concentrated feeds, it is to provide for more extensive utilization of potatoes, green fodders, grassmeal, food wastes and other feeds. In order to increase the production of pork, in addition to new pork farms, there is to be more extensive utilization of sties of the light type, summer camps and adapted facilities.

In conjunction with the Estonian SSR Gosplan, it will be necessary to envision in the draft of the State Plan for the Economic and Social Development of the Estonian SSR Under the 11th Five-Year Plan the construction of new hog farms and the expansion and reconstruction of existing ones.

The Estonian SSR Ministry of Procurements has been instructed to use state raw material to increase the production of starter feeds for young pigs and mixed feeds for nursing sows during 1979-1980 and to take measures to improve the quality of starter feeds for young pigs and mixed feeds for hogs and also for implementing these measures in keeping with schedules that are agreed upon by the farms.

The Estonian SSR Goskomsel'khoztekhnika should annually manufacture nonstandard equipment and the necessary quantity of metal cages for sows on orders from the Estonian SSR Ministry of Agriculture for reconstructing hog farms as part of production costs. It should also provide for prompt installation of equipment at all hog facilities and reproduction farms that are being started up.

In order to make up for the shortage of animal proteins in the rations of the young pigs and also to reduce the number of their deaths, the Estonian SSR Gosplan is to consider the possibilities of increasing the norms for the return of skim milk to the farms in the first and fourth quarters and to search out possibilities of increasing the allotments of fishmeal and nutritive yeasts from the Estonian SSR Ministry of Agriculture in order to balance their own feeds.



In order to fulfill the assignment for above-plan construction of sties, it was decided to leave above-normative supplies of construction materials at the disposal of agriculture and to allot additional rolled ferrous metals, cement, roofing slate, bitumen, water and gas pipes and high-pressure polyethylene from the reserve of the Estonian SSR Council of Ministers.

The decree makes it incumbent on a number of ministries and departments to render assistance to agriculture. The party gorkoms and raykoms, gorispolkoms and rayispolkoms have been given the assignment of searching out all reserves for increasing pork production.

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#### BRIEFS

**PATRONAGE SUPPORT--Kirov--**Farmers of the oblast are harvesting grasses with the help of patrons. Industrial enterprises of Kirov have sent more than 250 brigades to the farms and they are performing the entire complex of feed procurement work. The grasses have been mowed from almost half of the allotted areas. [Text] [Moscow GUDOK in Russian 10 Jul 79 p 1] 11772

**SECOND HARVEST--Bryansk--**Farmers of Bygonichskiy rayon have resolved to obtain a second harvest of grasses. Having removed the first cutting, they began to top-dress the meadows with mineral fertilizers and to irrigate. The machine operators intend to use the green mass from the second cutting for preparing haylage and silage. At the same time, planting aggregates have been taken out onto the fields where the plantings of pulse crops died because of the drought. Grass mixtures are being planted. [Text] [Moscow GUDOK in Russian 10 Jul 79 p 1] 11772

**FEED CONVEYOR--Yerevan--**A feed conveyor is in operation in the high mountainous Bardenisskiy rayon. There are more than 500 hay mowers, tractors and trucks at the disposal of the machine operators. It will be necessary to harvest the grass from 20,000 hectares of high mountainous meadows. A unified feed procurement brigade is in operation in the rayon. It was created on a recommendation from Armenian scientists. The local Sel'khoztekhnika division has taken on the responsibility of providing technical service for the brigade. [Text] [Moscow GUDOK in Russian 10 Jul 79 p 1] 11772

**GRASSMEAL FEED--Vil'nyus--**Lithuanian farms are preparing grassmeal. The dry summer made it necessary to search out reserves for augmenting the supplies of feeds. Grass from forest meadows, reeds from the shores of lakes and marshes as well as conifer needles are being put to use. This raw material is also being utilized for storing up silage mixtures. [Text] [Moscow GUDOK in Russian 10 Jul 79 p 1] 11772

**FEED PREPARATION--**Despite the difficult weather conditions, field-workers of Ryazanskaya Oblast are exerting all efforts to fully provide the farms with feeds. The mowing is being conducted successfully by machine operators of the Sovkhoz imeni 50-Letiye SSSR in Ryazanskiy Rayon. As of today, the farm has mowed the grass from an area of more than 400 hectares. [Text] [Moscow TRUD in Russian 4 Jul 79 p 2] 11772

PETROLEUM WORKERS' HELP--Orenburg--Each day about 200 petroleum workers from the Buguruslanneft' administration come to procure feeds on the Kolkhoz imeni Kirov in Buguruslanskiy Rayon. They are mowing the grass on unsuitable lands. Two or three tons of dry hay prepared by the patrons are coming into the farm's forage yard. [Text] [Moscow TRUD in Russian 7 Jul 79 p 1] 11772

FIELD TO ELEVATOR--Baku--Wheat harvest is in full swing on the fields of Sabirabadskiy Rayon. Each day each aggregate mows it from 10 hectares. The productivity is reaching almost 40 quintals per hectare. Having sent 12,000 tons of grain to the state grain bins, in the next few days the farmers will deliver no less than another 6,000 tons to the elevators. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 7 Jul 79 p 1] 11772

COMPLETION OF HARVEST--Baku--Combines are making way for plowing tractors on the fields of one of the largest grain rayons of Azerbaydzhan--Sabirabadskiy. Having applied the Ipatovo method, Sabirabadskiy farmers are completing the harvest at rapid rates, despite difficult weather conditions. In a short period of time, the grain has been gathered from almost two-thirds of the grainfields in the republic. [Text] [Moscow GUDOK in Russian 7 Jul 79 p 1] 11772

RECEIVING POINTS--Mikhachkala--Seven or eight working days is all the time the graingrowers of the kolkhozes and sovkhoses of Dagestan allotted themselves for harvesting the spike crops. The kolkhozes and sovkhoses of the republic have gathered the spike crops from more than 20,000 hectares. All grain receiving points are accepting grain from the new harvest these days. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 10 Jul 79 p 1] 11772

END OF HARVEST--Krasnodar--The harvest on the Kuban' steppes is coming to an end. In a total of 7-9 days the spike and pulse crops were harvested by the farms of Bryukhovetskiy, Starominskiy and other large grain rayons. The success in the harvest, which turned out to be complicated and difficult because of weather conditions, was achieved by observing efficient hourly work schedules, maneuvering technical equipment and utilizing it following the example of the Ipatovo workers in consolidated complexes and on two shifts. The machine operators of the kray have begun to prepare the technical equipment for gathering the yield of spring row crops. [Text] [Moscow TRUD in Russian 8 Jul 79 p 1] 11772

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